

ENVIRONMENTAL RESOLUTIONS, INC.

TRANSMITTAL

TO: Ms. Joan Fleck
California Regional Water Quality Control Board,
North Coast Region
5550 Skylane Boulevard, Suite A
Santa Rosa, California 95403

DATE: March 17, 2005
PROJECT NUMBER: 261914.W01
SUBJECT: Redwood Oil Facility 114,
1855 Guerneville Road, Santa Rosa,
California.

FROM: Mr. Glenn L. Matteucci
TITLE: Project Manager

WE ARE SENDING YOU:

COPIES	DATED	DESCRIPTION
1	March 17, 2005	Work Plan For Supplemental Evaluation of Groundwater

THESE ARE TRANSMITTED as checked below:

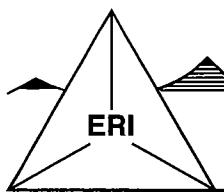
[X] For your files

[X] As requested

REMARKS: As requested by Redwood Oil Company (Redwood), Environmental Resolutions, Inc. (ERI), is forwarding one copy of the above-mentioned document directly to your office. Please call the undersigned at (707) 766-2000 with any questions or comments.

SCANNED
FOR MAILED COPY
Glenn L. Matteucci, Project Manager

cc: Mr. John Mahoney, Redwood Oil Company
1 copy to ERI project file 261914



ENVIRONMENTAL RESOLUTIONS, INC.

March 17, 2005
ERI 261903.W01

Mr. John Mahoney
Redwood Oil Company
455 Yolanda Avenue
Santa Rosa, California 95404

Subject: Work Plan for Supplemental Evaluation of Groundwater, Redwood Oil Facility 114, 1855 Guerneville Road, Santa Rosa, California.
CRWQCB Case No. 1TSR088

Mr. Mahoney:

At the request of Redwood Oil Company (Redwood), Environmental Resolutions, Inc. (ERI) has prepared this Work Plan. The work is proposed in response to a letter from the California Regional Water Quality Control Board, North Coast Region (Regional Board) dated January 5, 2005, requesting additional groundwater assessment (Attachment A). Specifically, the Regional Board has requested Redwood to: perform a sensitive receptor survey (SRS) to identify groundwater receptors in the vicinity of the subject site; initiate monthly sampling of three domestic wells located at 2050 and 2075 Marlow Road and 1815 Guerneville Road; assess the lateral and vertical extent of dissolved-phase hydrocarbons including methyl tertiary butyl ether (MTBE) detected in groundwater; and if necessary, provide the owners of the previously designated wells a potable water source. The purpose of the proposed work is to evaluate the lateral and vertical extent of dissolved-phase hydrocarbons and related compounds in groundwater northeast and east of the site; evaluate the most effective and cost-efficient approach to provide a safe drinking water supply for the previously designated properties; perform on-site source removal to address residual hydrocarbons impacting groundwater beneath the site; and move the site towards closure.

BACKGROUND

The site is located on the northeastern corner of Guerneville Road and Marlow Road in Santa Rosa, California, as shown on the Site Vicinity Map (Plate 1) and is currently an operating Redwood Oil facility with one 15,000-gallon and one 12,000-gallon double-walled fiberglass underground storage tanks (USTs), four dispenser islands, and a convenience store. The locations of existing USTs, dispenser islands, and other select features are shown on the Generalized Site Plan (Plate 2). The site is located within a mixed residential and commercial area of Santa Rosa. Three additional leaking underground fuel tank (LUFT) cases are reported within 1,000 feet of the site (<http://www.GeoTracker.com>). These include an operating Shell-branded service station and car wash directly west of the site; a 76-branded service station located at the southeast corner of the Guerneville Road and Marlow Road intersection; and a dry cleaning facility south of the site.

Groundwater monitoring and sampling for dissolved-phase hydrocarbons and related compounds was initiated in September 1989. Cumulative groundwater monitoring and sampling data of the wells associated with the subject site are provided in Tables 1A and 1B.

Groundwater and/or soil remediation has been conducted since the installation of passive bailers for liquid-phase hydrocarbon removal in November 1991. A soil vapor extraction (SVE) system and groundwater extraction and treatment (GET) system were installed in 1995. Approximately 3,160,318 gallons of water; 31.72 pounds of total petroleum hydrocarbons as gasoline (TPHg); and 0.54 pound of MTBE have been removed through fourth quarter 2004. The operational data for the GET system are provided on Table 2.

During October 2004, the GET system automatically shut down in response to a system compressor failure. The compressor was replaced; however, the system was not continuously operated since October 2004 because hydrocarbon mass removal rates were low, and GET is not a cost-effective technology to remove the dissolved-phase hydrocarbons and related compounds at current concentrations in groundwater beneath the site (ERI, January 25, 2005). The GET system mass removal versus time is shown on Graph 1. Groundwater concentrations of select hydrocarbons and MTBE versus time in well MW7 (located adjacent to the USTs) is provided in Graphs 2 through Graph 4.

WORK IN PROGRESS

In response to the January 5, 2005 Regional Board letter, Redwood authorized ERI to initiate select environmental activities. In addition, ERI performed source removal and feasibility testing at the site.

Sensitive Receptor Survey

During first quarter 2005, ERI performed an SRS for the subject site. Upon approval from the Regional Board during a telephone conversation in January 2005, ERI reviewed files at the Regional Board in Santa Rosa, California, and at the State of California Department of Water Resources (DWR) in Sacramento, California, to identify water supply wells within the vicinity of the site. The results of the file review are provided on Table 3A and shown on Plate 3.

Based upon information available to ERI, the closest water supply wells to the subject site include an irrigation well located approximately 20 feet northeast of the site at 2050 Marlow Road, one water supply well located approximately 105 feet northeast of the site at 2075 Marlow Road, and one water supply well located 235 feet east of the site at 1815 Guerneville Road. Records of these wells and specific well design were not available at the DWR.

ERI conducted a search of surface water bodies within a 1/2-mile radius of the site using the City of Santa Rosa Geographic Information System Map Search on-line reference and identified four surface water bodies. The surface water bodies within a 1/2-mile of the site are listed in Table 3B.

Monthly Domestic Well Groundwater Sampling

During January 2005, ERI obtained access agreements with the property owners and initiated monthly groundwater sampling of the wells located at 2050 and 2075 Marlow Road (2050 well and 2075 well, respectively) and 1815 Guerneville Road (1815 well). The groundwater samples are submitted to a California state-certified laboratory for analysis of oxygenated compounds. Results of laboratory analyses of the groundwater samples collected since January 2005 indicate that oxygenated compounds are not present at or above laboratory method reporting limits in the groundwater samples collected from water supply wells 2075 and 1815. Oxygenated compounds were not present in reportable concentrations in the groundwater sample collected from the 2050 irrigation well, except for MTBE (up to 22 micrograms per liter [ug/L]). Results of laboratory analyses of the groundwater samples are provided in Tables 1A and 1B.

Source Removal/Feasibility Test

During January/February 2005, ERI performed a 5-day source removal/feasibility test at the subject site. ERI activated the GET system to lower the water table and expose hydrocarbon-impacted soil and then induced a high vacuum to remove residual vapor-phase hydrocarbons.

Based upon data collected during the SVE activities, approximately 166.9 pounds of TPHg; 0.2 pound of benzene; and 0.1 pound of MTBE were removed during the source removal/feasibility test. Operational data and removal calculations for the 5-day source removal/feasibility test are provided in Table 4 and Table 5. Laboratory analysis reports and Chain-of-Custody records are included as Attachment C.

PROPOSED WORK

ERI proposes to advance three off-site, paired cone penetration test (CPT) borings and direct-push borings between the site and three previously identified domestic wells located northeast and east of the site to evaluate the lateral and vertical extent of dissolved hydrocarbons in groundwater. The CPT borings will provide a detailed evaluation of the stratigraphy beneath, northeast, and east of the site. The direct-push borings will provide depth-discrete water samples from intervals identified during the CPT borings.

ERI will perform the proposed field work in accordance with this Work Plan, ERI's Field Protocol (Attachment D), and a site-specific health and safety plan. The specific proposed tasks are summarized in the following sub-sections.

In addition, Redwood and ERI propose to provide wellhead treatment for the domestic wells and on-site source removal to address residual hydrocarbons impacting the groundwater. This will provide the most benefit for all stake holders involved and move the site towards closure.

Task 1: Pre-Drilling Activities

As part of the pre-drilling activities, ERI will:

- Negotiate access with the property owners to advance off-site CPT and direct-push soil borings.
- Prepare, submit, and obtain drilling permits from the County of Sonoma Department of Health Services, Environmental Health Division (the County).
- Contact Underground Service Alert (USA) and a private utility locating contractor to coordinate utility locating activities.

Task 2: CPT Borings and Groundwater Sampling

As part of soil boring activities, ERI will:

- Obtain the services of a licensed well driller and observe the clearance of each boring location using a hand-auger 4 feet below ground surface (bgs).
- Observe advancement of borings CPT4 through CPT6 using a CPT rig. The approximate proposed boring locations are shown on Plate 2; actual locations may be subject to change based on site conditions at the time of drilling. The locations of CPT borings were selected to evaluate hydrostratigraphic groundwater conditions between the site and the previously designated domestic wells. The borings will be advanced to a maximum depth of approximately 130 feet bgs.
- Observe the advancement of one direct-push boring (GeoProbe®, or similar) adjacent to each CPT boring to collect multiple depth-discrete groundwater samples.

- Submit groundwater samples collected from the direct-push borings to a California state-certified analytical laboratory, under Chain-of-Custody protocol. Groundwater samples will be submitted for analysis for TPHg, benzene, toluene, ethylbenzene, and total xylenes (BTEX), MTBE, ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), tertiary butyl alcohol (TBA), di-isopropyl ether (DIPE), and ethanol using EPA Method 8260B.
- Store soil cuttings generated during drilling on the Redwood facility property and cover with plastic sheeting pending characterization and disposal. Contain and store rinsate water on site in drums pending disposal. ERI will collect one composite soil sample (four brass sleeves) from the soil stockpile for laboratory analysis. Upon receipt of analytical results for the stockpiled soil, ERI will apprise Redwood of disposal options, and coordinate the disposal of the soil at an appropriate disposal facility selected and approved by Redwood.
- Interpret field and laboratory data to evaluate soil and groundwater conditions.

Task 3: Report Preparation

ERI will prepare a report for the investigation detailing field activities, sample collection, field observations, and analytical results for groundwater samples.

Task 4: WellHead Treatment

To provide a potable water supply for the MTBE impacted domestic wells, Redwood has authorized ERI to:

Install wellhead treatment systems at the properties located at 2050 & 2075 Marlow Road and 1815 Guerneville Road. The treatment systems will consist of two liquid-phase carbon vessels connected to each wellhead in series to remove dissolved-phase MTBE (if and when present) from the water produced from each well.

Task 5: Domestic Well Monitoring and Sampling

To provide ongoing assessment of the domestic wells' water quality, ERI will:

- Continue to collect samples monthly from the previously designated water wells. The samples will be submitted to a California state-certified laboratory, under Chain-of-Custody protocol, for analysis for MTBE, TBA, DIPE, ETBE, TAME, and ethanol using Environmental Protection Agency (EPA) Method 8260B.
- Collect monthly influent and effluent water samples from each wellhead treatment system following installation and analyze the water samples for the oxygenated compounds previously listed. ERI will collect the influent and effluent samples for three consecutive months. If laboratory analysis of the samples indicate that the oxygenated compounds are not present at or above laboratory method reporting limits, the sampling frequency will be revised to a quarterly schedule.
- Provide the laboratory results of the domestic well sampling events to the Regional Board and individual property owners.

SCHEDULE OF OPERATIONS

ERI will continue to collect groundwater samples from the previously designated domestic wells and will implement the remaining work described in Tasks 1 through 5 upon approval of this Work Plan from the Regional Board.

DOCUMENT DISTRIBUTION

ERI recommends forwarding copies of this report to:

Ms. Joan Fleck
California Regional Water Quality Control Board, North Coast Region
5550 Skylane Boulevard, Suite A
Santa Rosa, California 95403

LIMITATIONS

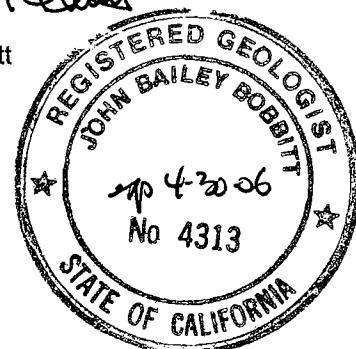
This report was prepared in accordance with generally accepted standards of environmental practice in California at the time this investigation was performed. This report has been prepared for ExxonMobil, and any reliance on this report by third parties shall be at such party's sole risk.

Please call Mr. Glenn L. Matteucci, ERI's project manager for this site, at (707) 766-2000 with any questions regarding this report.

Sincerely,
Environmental Resolutions, Inc.

Keri Munch
for
Travis Finn
Sr. Staff Scientist
SCANNED IMAGE
John Bailey Bobbitt

John B. Bobbitt
R.G. 4313



Attachments: Reference

- Table 1A: Cumulative Groundwater Monitoring and Sampling Data
Table 1B: Additional Cumulative Groundwater Monitoring and Sampling Data
Table 2: Operational and Performance Data for Groundwater Extraction and Treatment System
Table 3A: Water Well Data
Table 3B: Surface Water Data
Table 4: SVE Field Observations
Table 5: Vapor Extraction Test Results
- Plate 1: Site Vicinity Map
Plate 2: Generalized Site Plan
Plate 3: Well Survey Map
- Graph 1: Total Liquid-Phase Hydrocarbons Removed Vs. Gallons Removed
Graph 2: Groundwater Concentrations of MTBE VS. Time - MW7
Graph 3: Groundwater Concentrations of TPHg VS. Time - MW7
Graph 4: Groundwater Concentrations of BTEX VS. Time - MW7

- Attachment A: Regulatory Correspondence
Attachment B: Laboratory Analysis Results and Chain-of Custody Records
Attachment C: Field Protocol

REFERENCE

Environmental Resolutions, Inc. January 25, 2005. Notification of Remedial Activities to be conducted at 1855 Guerneville Road, Santa Rosa, California. ERI 2619JF.L01.

TABLE 1A
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
 Redwood Oil Facility 114
 1855 Guerneville Road
 Santa Rosa, California
 (Page 1 of 9)

Well ID # (TOC)	Sample Date	DTW feet	Elev. feet	TPHd	TPHg	MTBE	B ug/L	T	E	X
MW1	09/01/89	15.20	93.01	—	—	—	—	—	—	—
(108.21)	06/01/90	9.61	98.60	—	—	—	—	—	—	—
(123.18)	02/01/91	13.48	109.70	210	2,200	—	370	99	88	180
	03/01/91	12.10	111.08	—	—	—	—	—	—	—
	04/01/91	6.07	117.11	—	—	—	—	—	—	—
	05/16/91	10.24	112.94	60	2,900	—	370	38	80	120
	06/07/91	12.36	110.82	—	—	—	—	—	—	—
	07/01/91	12.76	110.42	—	—	—	—	—	—	—
	08/01/91	15.17	108.01	—	—	—	—	—	—	—
	08/16/91	16.01	107.17	60	1,800	—	590	16	77	69
	09/09/91	16.34	106.84	—	—	—	—	—	—	—
	10/04/91	16.47	106.71	—	—	—	—	—	—	—
	11/06/91	15.20	107.98	—	—	—	—	—	—	—
	12/06/91	14.00	109.18	530	1000	—	460	23	51	66
	01/06/92	12.24	110.94	—	—	—	—	—	—	—
	02/19/92	7.80	115.38	—	—	—	—	—	—	—
(123.82)	03/30/92	6.74	117.08	470	2600	—	600	<0.5	100	130
	04/23/92	7.76	116.06	—	—	—	—	—	—	—
	05/18/92	9.69	114.13	—	—	—	—	—	—	—
	06/16/92	11.91	111.91	<50	6000	—	1100	110	150	300
	07/24/92	14.90	108.92	—	—	—	—	—	—	—
	08/18/92	14.94	108.88	—	—	—	—	—	—	—
	09/24/92	15.59	108.23	1600	16000	—	2400	52	310	320
	10/21/92	15.59	108.23	—	—	—	—	—	—	—
	11/16/92	15.41	108.41	—	—	—	—	—	—	—
	12/16/92	9.78	114.04	100	70	—	4.5	<0.5	0.7	1.2
	01/13/93	6.34	117.48	—	—	—	—	—	—	—
	02/23/93	7.48	116.34	—	—	—	—	—	—	—
	03/17/93	8.68	115.14	710	<50	—	<0.5	<0.5	<0.5	<0.5
	04/16/93	7.78	116.04	—	—	—	—	—	—	—
	05/14/93	8.48	115.34	—	—	—	—	—	—	—
	09/30/93	15.45	108.37	330	2300	—	930	21	38	50
(123.25)	03/22/94	7.52	115.73	540	5,900	—	610	24	55	44
	09/22/94	13.70	109.55	70	5,800	—	1,500	86	210	340
	03/24/95	3.76	119.49	370	1,500	—	260	30	58	85
	08/30/95	11.81	111.44	390	12,000	—	2,800	210	410	580
	03/19/96	5.52	117.73	<50	730	—	230	18	54	46
	09/16/96	17.30	105.95	<50	470	—	74	20	18	32
	03/24/97	14.27	108.98	70	170	—	21	8.7	6.7	11
	09/29/97	18.00	105.25	60	550	—	74	21	28	44
	04/30/98	7.55	115.70	<50	250	—	25	3.0	11	13
	07/30/98	11.83	111.42	<50	4,000	24	510	170	180	240
	10/27/98	23.97	99.28	<50	490	6	8	3	3	4
	01/27/99	16.08	107.17	<50	340	9.6	23	17	13	31
	04/21/99	6.40	116.85	<50	2,700	30	260	140	140	240
	07/29/99	—	—	—	—	—	—	—	—	—
	10/28/99	21.79	101.46	<50	<50	5.2	0.80	<0.5	<0.5	<0.5
	02/04/00	11.60	111.65	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	04/27/00	20.45	102.80	<50	92	18	2.0	1.3	1.1	2.0
	07/25/00	15.15	108.10	240	4900	43	320	33	130	90
	10/26/00	21.49	101.76	<50	<50	5.9	1.3	<0.5	<0.5	<0.5
	01/17/01	21.72	101.53	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	04/24/01	14.38	108.87	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	07/31/01	16.55	106.70	280	2300	69	220	29	110	53
(124.84)	12/05/01	23.00	101.84	<50	260	8.4	14	22	9.6	41
	01/31/02	23.00	101.84	<50	<50	<5.0	1.1	<0.5	<0.5	2.6
	04/17/02	21.85	102.99	<50	<50	3	<1	<1	<1	<1
	07/10/02	22.05	102.79	<50	<50	3	<1	<1	<1	<1
	10/10/02	22.00	102.84	<63	<50	<5.0	<0.5	<0.5	<0.5	<1
	01/13/03	6.20	118.64	100	590	1.4	47	6.9	<2.5	18
	03/14/03	18.35	106.49	—	—	—	—	—	—	—
	04/16/03	18.40	106.44	<50	58	3	3	2	2	2
	07/16/03	18.35	106.49	<50	<50	3	1	<1	<1	<1
	10/21/03	18.35	106.49	<50	<50	11	<1	<1	<1	<1
	04/06/04	18.35	106.49	<50	140	1.6	2.8	2.5	2.2	12
	12/31/04	9.40	115.44	<50	190	2.5a	12a	1.1a	3.6a	1.0a

TABLE 1A
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
 Redwood Oil Facility 114
 1855 Guerneville Road
 Santa Rosa, California
 (Page 2 of 9)

Well ID # (TOC)	Sample Date	DTW feet	Elev. feet	TPHd	TPHg	MTBE	B ug/L	T	E	X
MW2	09/01/89	7.15	99.85	—	—	—	—	—	—	—
(107.00)	10/06/89	—	—	110,000	378,000	—	16,900	29,100	2,700	22,200
	06/01/90	6.48	100.52	—	—	—	—	—	—	—
(122.68)	02/01/91	6.93	115.75	—	—	—	—	—	—	—
	03/01/91	7.38	115.30	—	—	—	—	—	—	—
	04/01/91	6.35	116.33	—	—	—	—	—	—	—
	05/16/91	6.79	115.89	—	—	—	—	—	—	—
	06/07/91	7.22	115.46	—	—	—	—	—	—	—
	07/01/91	7.63	115.05	—	—	—	—	—	—	—
	08/01/91	7.58	115.10	—	—	—	—	—	—	—
	08/16/91	8.34	114.34	—	—	—	—	—	—	—
	09/09/91	8.19	114.49	—	—	—	—	—	—	—
	10/04/91	8.89	113.79	—	—	—	—	—	—	—
	11/06/91	7.94	114.74	—	—	—	—	—	—	—
	12/06/91	7.41	115.27	—	—	—	—	—	—	—
	01/06/92	7.75	114.93	—	—	—	—	—	—	—
	02/19/92	6.05	116.63	—	—	—	—	—	—	—
(123.14)	03/30/92	6.55	116.59	—	—	—	—	—	—	—
	04/23/92	6.24	116.90	—	—	—	—	—	—	—
	05/18/92	7.09	116.05	—	—	—	—	—	—	—
	06/16/92	7.65	115.49	—	—	—	—	—	—	—
	07/24/92	9.51	113.63	—	—	—	—	—	—	—
	08/18/92	9.50	113.64	—	—	—	—	—	—	—
	09/24/92	8.97	114.17	—	—	—	—	—	—	—
	10/21/92	8.73	114.41	—	—	—	—	—	—	—
	11/16/92	8.64	114.50	—	—	—	—	—	—	—
	12/16/92	7.07	116.07	—	—	—	—	—	—	—
	01/13/93	5.78	117.36	—	—	—	—	—	—	—
	02/23/93	10.19	112.95	—	—	—	—	—	—	—
	03/17/93	8.41	114.73	—	—	—	—	—	—	—
	04/16/93	6.75	116.39	—	—	—	—	—	—	—
	05/14/93	8.47	114.67	—	—	—	—	—	—	—
	09/30/93	13.61	109.53	—	—	—	—	—	—	—
	03/22/94	6.34	116.80	25,000	25,000	—	370	670	640	3,400
(123.20)	09/22/94	8.40	114.80	30,000	51,000	—	730	1,700	1,700	8,300
	03/27/95	5.92	117.28	—	—	—	—	—	—	—
	08/30/95	7.96	115.24	—	—	—	—	—	—	—
	03/19/96	6.14	117.06	13,000	19,000	—	120	79	540	1,600
	09/16/96	7.15	116.05	—	—	—	—	—	—	—
	03/24/97	5.00	118.20	32,000	53,000	—	650	1,000	3,000	13,000
	09/29/97	7.16	116.04	—	—	—	—	—	—	—
	04/30/98	4.83	118.37	1,600	64,000	—	390	<0.5	1,600	5,700
	07/30/98	5.87	117.33	77,000	340,000	<5.0	640	290	3,000	8,200
	10/27/98	7.32	115.88	1,200,009	110,000	6	240	50	1,400	3,000
	01/27/99	4.67	118.53	29,000	31,000	<500	240	92	1,500	3,200
	04/21/99	6.28	116.92	120,008	19,000	40	48	85	290	1,100
	07/29/99	7.92	115.28	14,000	16,000	260	110	50	500	450
	10/28/99	20.30	102.90	120,008	190,000	<50	960	770	5,100	1,300
	02/04/00	7.89	115.31	8,100	9,300	60	13	42	130	440
	04/27/00	13.25	109.95	5,700	19,000	240	1,400	900	710	2,000
	07/25/00	8.77	114.43	1,700	11,000	3.21	52	20	55	120
	10/26/00	15.42	107.78	2,000	10,000	57	380	200	310	650
	01/17/01	8.75	114.45	4,900	4,100	19	190	39	170	310
	04/24/01	16.24	106.96	5,000	3,400	84	130	42	170	270
	07/31/01	11.11	112.09	4,600	3,900	<50	290	22	110	70
(122.57)	12/05/01	23.00	99.57	1,700	6,200	6.5	120	110	90	490
	01/31/02	23.00	99.57	1,100	370	<5	4.2	2.1	3	18.8
	04/17/02	18.10	104.47	1,100	910	74	35	16	9	62
	07/10/02	18.25	104.32	2,100	920	45	22	4	1	26
	10/10/02	18.16	104.41	2,100	120,024	52	1.1	4.7	<0.5	2.2
	01/13/03	5.18	117.39	4,200	1,600	<2	16	<5	18	12
	03/14/03	17.85	104.72	—	—	—	—	—	—	—
	04/16/03	14.50	108.07	520	<50	14	4	<1	<1	1
	07/16/03	18.50	104.07	2,300	1,100	67	66	4	26	13

TABLE 1A
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA

Redwood Oil Facility 114
1855 Guerneville Road
Santa Rosa, California
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TABLE 1A
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA

Redwood Oil Facility 114
1855 Guerneville Road
Santa Rosa, California
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TABLE 1A
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
 Redwood Oil Facility 114
 1855 Guerneville Road
 Santa Rosa, California
 (Page 5 of 9)

Well ID # (TOC)	Sample Date	DTW <----feet---->	Elev.	TPHd	TPHg	MTBE	B ug/L	T	E	X
MW5 (cont.) (122.14)	10/27/98	—	—	—	—	—	—	—	—	—
	01/27/99	—	—	—	—	—	—	—	—	—
	04/21/99	—	—	—	—	—	—	—	—	—
Well										
MW6 (122.86)	03/30/92	7.38	115.48	14,000	69,000	—	11,000	19,000	1,400	16,000
	04/23/92	7.63	115.23	—	—	—	—	—	—	—
	05/18/92	8.62	114.24	—	—	—	—	—	—	—
	06/16/92	9.97	112.89	<50	73,000	—	5,900	1,400	2,400	6,700
	07/24/92	11.72	111.14	—	—	—	—	—	—	—
	08/18/92	11.93	110.93	—	—	—	—	—	—	—
	09/24/92	—	—	—	—	—	—	—	—	—
	10/21/92	—	—	—	—	—	—	—	—	—
	11/16/92	—	—	—	—	—	—	—	—	—
	12/16/92	10.9	111.96	17,000	61,000	—	6,700	8,700	770	9,100
	01/13/93	6.67	116.19	—	—	—	—	—	—	—
	02/23/93	10.65	112.21	—	—	—	—	—	—	—
	03/17/93	8.68	114.18	1,800	2,800	—	360	140	17	580
	04/16/93	7.45	115.41	—	—	—	—	—	—	—
	05/14/93	7.48	115.38	—	—	—	—	—	—	—
	09/30/93	—	—	—	—	—	—	—	—	—
	03/22/94	7.03	115.83	22,000	5,000	—	620	92	290	660
	09/22/94	12.24	110.62	—	—	—	—	—	—	—
	03/27/95	8.61	114.25	6,300	18,000	—	3,900	2,000	1,000	3,200
	08/30/95	10.3	112.56	—	28,000	—	3,200	290	1,500	2,500
	03/19/96	8.21	114.65	<100	20,000	—	3,600	780	1,300	2,500
	09/16/96	—	—	—	—	—	—	—	—	—
	03/24/97	—	—	—	—	—	—	—	—	—
	09/29/97	—	—	—	—	—	—	—	—	—
	04/30/98	—	—	—	—	—	—	—	—	—
	07/30/98	—	—	—	—	—	—	—	—	—
	10/27/98	—	—	—	—	—	—	—	—	—
	01/27/99	—	—	—	—	—	—	—	—	—
	04/21/99	8.38	114.48	1908	3,600	<5.0	300	41	150	150
	07/29/99	—	—	—	—	—	—	—	—	—
	04/27/00	7.51	115.35	<50	1,400	18	71	15	21	13
Well										
MW7 (123.53)	03/30/92	5.53	118.00	5,040	86,000	—	20,000	22,000	3,200	14,000
	04/23/92	6.57	116.96	—	—	—	—	—	—	—
	05/18/92	7.66	115.87	—	—	—	—	—	—	—
	06/16/92	—	—	—	—	—	—	—	—	—
	06/22/92	—	—	<50	310,000	—	24,000	30,000	7,000	30,000
	07/24/92	12.03	111.50	—	—	—	—	—	—	—
	08/18/92	12.14	111.39	—	—	—	—	—	—	—
	09/24/92	12.83	110.70	32,000	110,000	—	23,000	27,000	3,300	16,000
	10/21/92	12.63	110.90	—	—	—	—	—	—	—
	11/16/92	12.71	110.82	—	—	—	—	—	—	—
	12/16/92	7.75	115.78	11,000	67,000	—	12,000	15,000	1,100	7,800
	01/13/93	5.40	118.13	—	—	—	—	—	—	—
	02/23/93	10.81	112.72	—	—	—	—	—	—	—
	03/17/93	7.67	115.86	12,000	48,000	—	10,000	14,000	1,400	7,800
	04/16/93	6.35	117.18	—	—	—	—	—	—	—
	05/14/93	8.38	115.15	—	—	—	—	—	—	—
	09/30/93	13.45	110.08	14,000	74,000	—	7,600	11,000	1,400	7,700
	03/22/94	6.20	117.30	27,000	63,000	—	7,600	12,000	1,100	8,300
	09/22/94	13.70	109.80	1,100	76,000	—	11,000	13,000	1,500	8,900
	03/27/95	3.87	119.63	—	—	—	—	—	—	—
	08/30/95	9.14	114.36	5,400	100,000	—	16,000	4,800	2,600	13,000
	03/19/96	6.19	117.31	<250	64,000	—	9,000	9,800	1,600	8,300
	09/16/96	13.83	109.67	<500	50,000	—	5,500	6,800	1,600	7,100
	03/24/97	13.50	110.00	4,600	68,000	—	5,800	9,600	2,700	11,000
	09/29/97	13.42	110.08	3,600	21,000	—	1,700	1,900	910	3,800
	04/30/98	7.60	115.90	290	16,000	—	1,300	1,300	630	2,300
	07/30/98	13.07	110.43	660	18,000	20	310	560	530	2,000
	10/27/98	13.98	109.52	4	11,000	54	780	460	310	1,500
	01/27/99	13.58	109.92	<50	32,000	360	1,500	1,900	1,100	3,700
	04/21/99	5.65	117.85	510	15,000	130	800	510	410	1,400
	07/29/99	10.85	112.65	1,900	7,000	150	330	120	330	810
	10/28/99	13.68	109.82	1,300	11,000	<5.0	300	32	630	1,500

TABLE 1A
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
 Redwood Oil Facility 114
 1855 Guerneville Road
 Santa Rosa, California
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Well ID # (TOC)	Sample Date	DTW <--feet-->	Elev.	TPHd	TPHg	MTBE	B ug/L	T	E	X
MW7 (cont.) (123.50)	02/04/00	13.56	109.94	<50	26,000	980	980	1,300	710	2,800
	04/27/00	9.56	113.94	490	3,000	1,100	110	32	170	290
	07/25/00	—	—	—	—	—	—	—	—	—
	10/26/00	10.60	112.90	<50	1,100	<0.5	34	19	21	74
	01/17/01	10.14	113.36	1,100	600	<5.0	5.1	2.2	12	17
	04/24/01	13.26	110.24	5,300	10,000	<250	580	990	610	2,100
	07/31/01	11.77	111.73	390	750	16	16	8.6	24	38
(124.46)	12/05/01	27.00	97.46	150	610	33	81	46	18	82
	01/31/02	27.00	97.46	260	1,400	22	72	43	5.5	191
	04/17/02	25.80	98.66	460	1,500	29	37	67	12	320
	07/10/02	25.85	98.61	340	1,700	36	55	130	60	292
	10/10/02	25.80	98.66	380	670	21	4.8	6.4	1.1	20
	01/13/03	7.91	116.55	1,900	9,800	14	360	230	470	1,500
	03/14/03	25.80	98.66	—	—	—	—	—	—	—
	04/16/03	25.80	98.66	<50	<50	14	<1	<1	<1	<1
	07/16/03	25.80	98.66	110	<50	15	1	<1	<1	<1
	10/21/03	25.80	98.66	<50	<50	2	<1	<1	<1	<1
	04/06/04	25.80	98.66	1,700	3,700	7.2	150	82	200	437
	12/31/04	8.17	116.29	<50	3,200	<2a	150a	66a	120a	210a
MW8 (124.10)	03/30/92	6.00	118.10	9,090	22,000	—	860	3,200	580	4,000
	04/23/92	6.89	117.21	—	—	—	—	—	—	—
	05/18/92	9.00	115.10	—	—	—	—	—	—	—
	06/16/92	11.71	112.39	<50	83,000	—	10,000	16,000	1,900	8,500
	07/24/92	14.51	109.59	—	—	—	—	—	—	—
	08/18/92	14.65	109.45	—	—	—	—	—	—	—
	09/24/92	15.58	108.52	—	—	—	—	—	—	—
	10/21/92	15.43	108.67	—	—	—	—	—	—	—
	11/16/92	5.46	118.64	—	—	—	—	—	—	—
	12/16/92	7.73	116.37	—	—	—	—	—	—	—
	01/13/93	5.30	118.80	—	—	—	—	—	—	—
	02/23/93	10.31	113.79	—	—	—	—	—	—	—
	03/17/93	7.67	116.43	—	—	—	—	—	—	—
	04/16/93	6.56	117.54	—	—	—	—	—	—	—
	05/14/93	8.13	115.97	—	—	—	—	—	—	—
	09/30/93	15.10	109.00	35,000	110,000	—	12,000	34,000	4,000	22,000
(123.95)	03/22/94	5.10	118.85	460,000	69,000	—	1,400	12,000	2,800	15,000
	09/22/94	13.86	110.09	4,600	66,000	—	2,300	8,400	1,900	10,000
	03/27/95	3.25	120.70	—	—	—	—	—	—	—
	08/30/95	11.05	112.90	—	—	—	—	—	—	—
	03/19/96	4.08	119.87	<50	5,800	—	5.3	130	91	480
	09/16/96	14.49	109.46	<500	18,000	—	110	810	320	2,900
	03/24/97	5.58	118.37	8,600	20,000	—	40	45	67	170
	09/29/97	13.29	110.66	640	1,200	—	19	1.1	2.2	5.6
	04/30/98	5.55	118.40	<50	260	—	0.87	<0.5	1.1	1.9
	07/30/98	10.42	113.53	250	6,100	<5.0	33	150	100	410
	10/27/98	15.41	108.54	59	6,900	2	9	20	42	240
	01/27/99	5.42	118.53	<50	600	<5.0	<0.5	1.4	1.3	8.9
	04/21/99	7.70	116.25	100	2,100	7.7	4.3	0.76	4.1	37
	07/29/99	11.01	112.94	1,300	9,800	88	24	60	130	630
	10/28/99	16.98	106.97	—	24,000	<50	<50	310	330	1,500
	02/04/00	10.78	113.17	160,000	2,200,000	<500	<500	7,200	9,600	82,000
	03/09/00	—	—	3,300	9,600	90	27	200	140	690
	03/09/00	—	—	3,100	12,000	260	<50	260	150	800
	04/27/00	14.82	109.13	12,000	47,000	240	130	760	590	2,100
	07/25/00	12.50	111.45	2,200	16,000	<10	55	29	68	210
	10/26/00	—	—	530,000	110,000	<550	<550	<550	900	3,400
	01/17/01	15.57	108.38	83,000	1,400	<50	52	55	24	150
	04/24/01	8.10	115.85	55,000	43,000	<500	<50	300	450	3,100
	07/31/01	14.31	109.64	7,000	11,000	<250	93	100	69	210
(124.07)	12/05/01	27.00	97.07	81	380	<5	3	5.1	2.1	28
	01/31/02	27.00	97.07	<50	<50	<5	<0.5	<0.5	<0.5	<0.5
	04/17/02	20.05	104.02	1,000	3,100	<1	30	5	1	207
	07/10/02	25.82	98.25	1,100	3,200	2	340	52	13	450
	10/10/02	25.80	98.27	2,000	11,000	<25	550	220	130	370
	01/13/03	3.60	120.47	880	150	<1	<0.5	<0.5	<0.5	4.6
	03/14/03	25.80	98.27	—	—	—	—	—	—	—
	04/16/03	7.61	116.46	7,400	1,300	<1	41	22	6	86

TABLE 1A
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
 Redwood Oil Facility 114
 1855 Guerneville Road
 Santa Rosa, California
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Well ID # (TOC)	Sample Date	DTW <----feet---->	Elev.	TPHd	TPHg	MTBE	B	T	E	X
							ug/L			
MW8 (cont.) (124.07)	07/16/03	25.80	98.27	32,000	750	3	26	24	8	91
	10/21/03	25.80	98.27	1,600	4,600	<1	8	59	8	470
	04/06/04	25.80	98.27	<50	61	<0.5	<0.5	<0.5	<0.5	1.4
	12/31/04	3.70	120.37	<50	<50	<1a	<0.5a	<0.5a	<0.5a	<0.5a
MW9 (122.57)	03/22/94	5.74	116.83	150,000	47,000	--	810	2,800	900	11,000
	09/22/94	8.40	114.17	4,100	52,000	--	900	1,300	1,600	7,700
	03/27/95	5.15	117.42	--	--	--	--	--	--	--
	08/30/95	7.20	115.37	5,500	19,000	--	380	220	520	2,100
	03/19/96	5.43	117.14	5,000	9,000	--	150	140	170	670
	09/16/96	12.98	109.59	2,000	6,500	--	560	720	220	1,100
	03/24/97	6.42	116.15	290	250	--	7.6	1.3	2.5	12
	09/29/97	12.53	110.04	1,200	2,700	--	170	60	1.5	520
	04/30/98	5.17	117.40	<50	350	--	11	<0.5	7.7	22
	07/30/98	7.01	115.56	360	<500	<5.0	21	<5	<5	6.8
	10/27/98	8.80	113.77	<50	330	2	<0.5	<0.5	<0.5	<1
	01/27/99	6.06	116.51	<50	100	7.7	8.9	<0.5	1.1	<0.5
	04/21/99	5.97	116.60	<50	<50	6.6	3.2	<0.5	<0.5	1.1
	07/29/99	6.24	116.33	538	120	<5.0	0.9	0.8	0.8	1.6
	10/28/99	11.50	111.07	<50	78	<0.5	<0.5	1	<0.5	1.7
	02/04/00	6.10	116.47	<50	200	<0.5	8.5	2.8	<0.5	3.2
	04/27/00	5.12	117.45	<50	110	11	3.6	1.2	<0.5	<0.5
	07/25/00	6.67	115.90	180	900	3.1	15	1.9	13	19
	10/26/00	6.56	116.01	<50	510	<0.5	8.2	0.8	1.5	0.6
	01/17/01	9.11	113.46	2,100	290	<5.0	5.4	3.8	1.6	8.8
	04/24/01	6.31	116.26	200	160	<5.0	9.6	0.78	2.2	1.6
	07/31/01	10.95	111.62	100	160	5	1.9	0.9	<0.5	3.3
(123.60)	12/05/01	5.21	118.39	570	570	<5	72	6.5	9.2	17
	01/31/02	8.50	115.10	520	820	<5	<5	<5	<5	<5
	04/17/02	12.51	111.09	54	290	1	46	67	6	25
	07/10/02	13.55	110.05	350	220	<1	6	5	2	6
	10/10/02	14.11	109.49	1,200	3,100	<10	<25	<25	98	280
	01/13/03	4.32	119.28	470	580	<2	27	5.3	3.2	9.2
	03/14/03	8.05	115.55							
	04/16/03	7.21	116.39	93	87	<1	7	<1	<1	1
	07/16/03	9.07	114.53	450	430	7	<1	<1	<1	4
	10/21/03	12.88	110.72	76	140	2	<1	<1	<1	1
	04/06/04	6.82	116.78	51	99	1.1	5.4	4.9	1.2	15.6
	12/31/04	4.88	118.72	<50	14,000	<10a	320a	560a	420a	1,500a
MW10 (122.52)	11/11/99	15.03	107.49	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	02/04/00	11.30	111.22	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	04/27/00	11.98	110.54	<50	<50	7.4	<0.5	<0.5	<0.5	<0.5
	07/25/00	14.60	107.92	120	<50	<2.0	<0.5	<0.5	<0.5	<0.5
	10/26/00	15.83	106.69	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5
(123.85)	01/17/01	13.00	109.52	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	04/24/01	—	—	—	—	—	—	—	—	—
	08/06/01	16.21	106.31	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	12/05/01	9.40	114.45	150	<50	<5	<0.5	<0.5	<0.5	<0.5
	01/31/02	8.12	115.73	<50	<50	<5	<0.5	<0.5	<0.5	0.76
	04/17/02	10.90	112.95	<50	370	<1	93	95	6	18
	07/10/02	15.70	108.15	<50	<50	<1	<1	<1	<1	<1
	10/10/02	16.85	107.00	<50	<60	<5	2.7	2.4	1.2	3.7
	01/13/03	5.75	118.10	140	<50	<1	<0.5	<0.5	<0.5	<1
	03/14/03	7.67	116.18	—	—	—	—	—	—	—
	04/16/03	8.49	115.36	<50	<50	<1	<1	<1	<1	<1
	07/16/03	12.80	111.05	<50	<50	<1	<1	<1	<1	<1
	10/21/03	14.79	109.06	<53	<50	<1	<1	<1	<1	<1
	04/06/04	8.30	115.55	<250	<50	<0.5	<0.5	<0.5	<0.5	<1
	12/31/04	6.46	117.39	<50	<50	<1a	<0.5a	<0.5a	<0.5a	<0.5a
MW11 125.38	12/05/01	5.20	120.18	<50	200	<5	<0.5	<0.5	<0.5	<0.5
	01/31/02	7.48	117.90	<50	<50	<5	<0.5	<0.5	<0.5	0.71
	04/17/02	11.16	114.22	<50	370	<1	72	99	8	37
	07/10/02	15.09	110.29	<50	61	2	11	7	2	6
	10/10/02	16.47	108.91	<50	<50	<5	4.4	3.5	1.6	5.2
	01/13/03	5.91	119.47	<50	68	<1	12	5.5	1.2	8.6
	03/14/03	7.22	118.16	—	—	—	—	—	—	—
	04/16/03	6.52	118.86	<50	<50	<1	<1	<1	<1	<1

TABLE 1A
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
 Redwood Oil Facility 114
 1855 Guerneville Road
 Santa Rosa, California
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Well ID # (TOC)	Sample Date	DTW feet	Elev. feet	TPHd	TPHg	MTBE	B ug/L	T	E	X
MW11 (cont.) (125.38)	07/16/03	11.51	113.87	<50	<50	2	4	7	<1	7
	10/21/03	14.26	111.12	<50	<50	<1	<1	<1	<1	<1
	04/06/04	6.47	118.91	<50	71	2.3	6.5	5.6	1.2	15.9
	12/31/04	4.89	120.49	<50	<50	<1a	<0.5a	<0.5a	<0.5a	<0.5
V1 (124.83)	12/05/01	5.30	-130.13	—	—	—	—	—	—	—
	01/31/02	5.86	-130.69	—	—	—	—	—	—	—
	04/17/02	8.00	-132.83	—	—	—	—	—	—	—
	07/10/02	9.10	-133.93	—	—	—	—	—	—	—
	10/10/02	9.80	-134.63	—	—	—	—	—	—	—
	01/13/03	4.24	-129.07	—	—	—	—	—	—	—
	03/14/03	5.87	-130.70	—	—	—	—	—	—	—
	04/16/03	7.80	-132.63	—	—	—	—	—	—	—
	07/16/03	8.09	-132.92	—	—	—	—	—	—	—
	10/21/03	10.09	-134.92	—	—	—	—	—	—	—
	04/06/04	6.01	-130.84	—	—	—	—	—	—	—
	12/31/04	3.30	-128.13	—	—	—	—	—	—	—
V2 (124.63)	12/05/01	5.30	-129.93	—	—	—	—	—	—	—
	01/31/02	5.43	-130.06	—	—	—	—	—	—	—
	04/17/02	8.20	-132.83	—	—	—	—	—	—	—
	07/10/02	9.00	-133.63	—	—	—	—	—	—	—
	10/10/02	10.72	-135.35	—	—	—	—	—	—	—
	01/13/03	4.25	-128.88	—	—	—	—	—	—	—
	03/14/03	5.85	-130.48	—	—	—	—	—	—	—
	04/16/03	5.82	-130.45	—	—	—	—	—	—	—
	07/16/03	7.98	-132.61	—	—	—	—	—	—	—
	10/21/03	9.98	-134.61	—	—	—	—	—	—	—
	04/06/04	6.02	-130.65	—	—	—	—	—	—	—
	12/31/04	4.42	-129.05	—	—	—	—	—	—	—
V3 (124.31)	12/05/01	5.05	-129.36	—	—	—	—	—	—	—
	01/31/02	5.35	-129.66	—	—	—	—	—	—	—
	04/17/02	7.75	-132.06	—	—	—	—	—	—	—
	07/10/02	8.52	-132.83	—	—	—	—	—	—	—
	10/10/02	10.55	-134.86	—	—	—	—	—	—	—
	01/13/03	3.91	-128.22	—	—	—	—	—	—	—
	03/14/03	5.68	-129.99	—	—	—	—	—	—	—
	04/16/03	5.52	-129.83	—	—	—	—	—	—	—
	07/16/03	7.46	-131.77	—	—	—	—	—	—	—
	10/21/03	9.46	-133.77	—	—	—	—	—	—	—
	04/06/04	5.74	-130.05	—	—	—	—	—	—	—
	12/31/04	4.37	-128.68	—	—	—	—	—	—	—
V4 (124.81)	12/05/01	7.05	-131.86	—	—	—	—	—	—	—
	01/31/02	7.30	-132.11	—	—	—	—	—	—	—
	04/17/02	8.07	-132.88	—	—	—	—	—	—	—
	07/10/02	9.31	-134.12	—	—	—	—	—	—	—
	10/10/02	8.75	-133.56	—	—	—	—	—	—	—
	01/13/03	6.51	-131.32	—	—	—	—	—	—	—
	03/14/03	7.30	-132.11	—	—	—	—	—	—	—
	04/16/03	7.14	-131.95	—	—	—	—	—	—	—
	07/16/03	8.11	-132.92	—	—	—	—	—	—	—
	10/21/03	10.11	-134.92	—	—	—	—	—	—	—
	04/06/04	7.16	-131.97	—	—	—	—	—	—	—
	12/31/04	6.26	-131.07	—	—	—	—	—	—	—
DW2050	04/21/99	—	—	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	08/11/99	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	10/28/99	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	02/04/00	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	05/01/00	—	—	<50	<50	<2.0	<0.5	<0.5	<0.5	<0.5
	07/25/00	—	—	<50	<50	<2.0	<0.5	<0.5	<0.5	<0.5
	10/26/00	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5
	01/17/01	—	—	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	04/24/01	—	—	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	07/31/01	—	—	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	12/05/01	—	—	<50	<50	<5	<0.5	<0.5	<0.5	<0.5
	01/31/02	—	—	<50	<50	<5	<0.5	<0.5	<0.5	<0.5

TABLE 1A
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
 Redwood Oil Facility 114
 1855 Guerneville Road
 Santa Rosa, California
 (Page 9 of 9)

Well ID # (TOC)	Sample Date	DTW <----feet---->	Elev. <----feet---->	TPHd	TPHg	MTBE	B	T	E	X
							ug/L			
DW2050	04/17/02	—	—	<50	<50	2	<1	<1	<1	<1
(cont.)	05/24/02	—	—	<50	<50	<5	<0.5	<0.5	<0.5	<1
	07/10/02	—	—	<50	<50	4	<1	<1	<1	<1
	08/07/02	—	—	<50	<50	<5	<0.5	<0.5	<0.5	<1
	10/10/02	—	—	<50	<50	5.7	<0.5	<0.5	<0.5	<1
	01/13/03	—	—	<50	<50	4.4	<0.5	<0.5	<0.5	<1
	04/16/03	—	—	<50	<50	4	<1	<1	<1	<1
	07/16/03	—	—	<50	<50	9	<1	<1	<1	<1
	10/21/03	—	—	<50	<50	11	<1	<1	<1	<1
	04/06/04	—	—	<50	<50	6.4	<0.5	<0.5	<0.5	<1
	12/31/04	—	—	<50	<50	27	<0.5	<0.5	<0.5	<0.5
DW2075	07/24/01	—	—	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5
	12/05/01	—	—	<50	<50	<5	<0.5	<0.5	<0.5	<0.5
	01/31/02	—	—	<50	<50	<5	<0.5	<0.5	<0.5	<0.5
	04/17/02	—	—	<50	<50	<1	<1	<1	<1	<1
	07/10/02	—	—	<50	<50	<1	<1	<1	<1	<1
	10/10/02	—	—	<50	<50	<5	<0.5	<0.5	<0.5	<1
	01/13/03	—	—	<50	<50	<1	<0.5	<0.5	<0.5	<1
	04/16/03	—	—	<50	<50	<1	<1	<1	<1	<1
	07/16/03	—	—	<50	<50	<1	<1	<1	<1	<1
	10/21/03	—	—	<50	<50	<1	<1	<1	<1	<1
	04/06/04	—	—	<50	<50	<0.5	<0.5	<0.5	<0.5	<1
	12/31/04	—	—	<50	<50	<1.1	<0.5	<0.5	<0.5	<0.5

Notes:

Data collected prior to April, 2004 compiled from the ECM Group Systems Operations Report dated July 9, 2004.

TOC	=	Elevation of top of well casing; relative to mean sea level.
DTW	=	Depth to water.
Elev.	=	Elevation of groundwater above mean sea level.
TPHd	=	Total petroleum hydrocarbons as diesel.
TPHg	=	Total petroleum hydrocarbons as gasoline.
MTBE	=	Methyl tertiary butyl ether analyzed using EPA Method 8021B.
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8021B.
ETBE	=	Ethyl tertiary butyl ether analyzed using EPA Method 8260B.
TBA	=	Tertiary butyl alcohol analyzed using EPA Method 8260B.
DIPE	=	Di-isopropyl ether analyzed using EPA Method 8260B.
TAME	=	Tertiary amyl methyl ether analyzed using EPA Method 8260B.
1,2-DCA	=	1,2-Dichloroethane analyzed using EPA Method 8260B.
EDB	=	1,2-Dibromoethane analyzed using EPA Method 8260B.
Ethanol	=	Ethanol analyzed using EPA Method 8260B.
ug/L	=	Micrograms per liter.
—	=	Not analyzed/Not measured.
<	=	Analytes not detected at or above the laboratory reporting limit.
a	=	Analyzed using EPA Method 8260B.

TABLE 1B
ADDITIONAL CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
 Redwood Oil Facility 114
 1855 Guerneville Road
 Santa Rosa, California
 (Page 1 of 1)

Well ID #	Sample Date	ETBE	TBA	DIPE	TAME	1,2-DCA	EDB	Ethanol
		<			ug/L			>
MW1	12/31/04	<5	<10	<5	<5	<0.5	<0.5	<100
MW2	12/31/04	<5	<10	<5	<5	<0.5	<0.5	<100
MW3	12/31/04	<5	<10	<5	<5	<0.5	<0.5	<100
MW4	12/31/04	<5	<10	<5	<5	<0.5	<0.5	<100
MW7	12/31/04	<10	<20	<10	<10	<1	<1	<200
MW8	12/31/04	<5	<10	<5	<5	<0.5	<0.5	<100
MW9	12/31/04	<50	<100	<50	<50	<5	<5	<1,000
MW10	12/31/04	<5	<10	<5	<5	<0.5	<0.5	<100
MW11	12/31/04	<5	<10	<5	<5	<0.5	<0.5	<100
DW2050	12/31/04	<5	<10	<5	<5	<0.5	<0.5	<100
DW2075	12/31/04	<5	<10	<5	<5	<0.5	<0.5	<100

Notes:

Data collected prior to April, 2004 compiled from the ECM Group Systems Operations Report dated July 9, 2004.

TOC	=	Elevation of top of well casing; relative to mean sea level.
DTW	=	Depth to water.
Elev.	=	Elevation of groundwater above mean sea level.
TPHd	=	Total petroleum hydrocarbons as diesel.
TPHg	=	Total petroleum hydrocarbons as gasoline.
MTBE	=	Methyl tertiary butyl ether analyzed using EPA Method 8021B.
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8021B.
ETBE	=	Ethyl tertiary butyl ether analyzed using EPA Method 8260B.
TBA	=	Tertiary butyl alcohol analyzed using EPA Method 8260B.
DIPE	=	Di-isopropyl ether analyzed using EPA Method 8260B.
TAME	=	Tertiary amyl methyl ether analyzed using EPA Method 8260B.
1,2-DCA	=	1,2-Dichloroethane analyzed using EPA Method 8260B.
EDB	=	1,2-Dibromoethane analyzed using EPA Method 8260B.
Ethanol	=	Ethanol analyzed using EPA Method 8260B.
ug/L	=	Micrograms per liter.
---	=	Not analyzed/Not measured.
<	=	Analytes not detected at or above the laboratory reporting limit.
a	=	Analyzed using EPA Method 8260B.

TABLE 2
OPERATIONAL AND PERFORMANCE DATA FOR GROUNDWATER EXTRACTION AND TREATMENT SYSTEM
Redwood Oil Facility #114
1855 Guerneville Road
Santa Rosa, California
(Page 1 of 4)

TABLE 2
OPERATIONAL AND PERFORMANCE DATA FOR GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

Redwood Oil Facility #114
 1855 Guerneville Road
 Santa Rosa, California
 (Page 2 of 4)

TABLE 2

OPERATIONAL AND PERFORMANCE DATA FOR GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

Redwood Oil Facility #114

1855 Guerneville Road

Santa Rosa, California

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TABLE 2
OPERATIONAL AND PERFORMANCE DATA FOR GROUNDWATER EXTRACTION AND TREATMENT SYSTEM
 Redwood Oil Facility #114
 1855 Guerneville Road
 Santa Rosa, California
 (Page 4 of 4)

Date	Effluent Totalizer [gal]	Total Flow [gal]	Average Flowrate [gpm]	Sample ID	TPHg	TPHd	B	T	E	X	MTBE	TPHg Removed Per Period	TPHg Removed Cumulative	MTBE Removed Per Period	MTBE Removed Cumulative
					<————	—————	—————	—————	—————	—————>		<————	—————	—————	—————>
06/09/04	1,623,538	3,065,193	0.63												
06/11/04	1,626,596	3,068,251	1.06												
06/14/04	1,630,319	3,071,974	0.86												
06/22/04	1,636,658	3,078,313	0.55												
06/28/04	1,638,939	3,080,594	0.26												
07/02/04	1,642,243	3,083,898	0.57												
07/06/04	1,648,110	3,089,765	0.68												
07/09/04	1,649,086	3,090,741	0.68												
07/16/04	1,655,763	3,097,418	0.66												
07/22/04		3,097,418			360	190	5	4	5.3	33.00	8	0.12	5.70	0.00	0.105
07/23/04	1,661,727	3,103,382	0.59												
07/30/04	1,667,644	3,109,299	0.59												
08/04/04	1,671,901	3,113,556	0.59												
08/17/04	1,682,109	3,123,764	0.55		160,000	<50	3,100	1,000	2400.0	12,000.00	2,700	17.62	23.32	0.30	0.402
08/25/04	1,688,062	3,129,717	0.52												
09/01/04	1,692,342	3,133,997	0.42												
09/08/04	1,694,496	3,136,151	0.21												
09/13/04	1,694,496	3,136,151	0.00		550	<50	16.00	3	5.1	27.00	8	8.29	31.61	0.14	0.542
09/17/04	1,700,589	3,142,244	0.47												
12/31/04	System started to treat purge water from groundwater sampling event.														
12/31/04	1,718,663	3,160,318	0.12	W-INF	560	1400	29	9.3	24	23	1.2	0.11	31.72	0.00	0.543
				W-INT	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5				
				W-EFF	<50	<50	<0.5	<0.5	<0.5	<0.5	<1				

Notes:

- W-INF = Influent water sample.
- W-INT = Intermediate water sample.
- W-EFF = Effluent water sample.
- TPHg = Total petroleum hydrocarbons as gasoline analyzed using EPA Method 8260B.
- TPHd = Total petroleum hydrocarbons as diesel analyzed using EPA Method 8260B.
- BTEX = Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8260B.
- MTBE = Methyl tertiary butyl ether analyzed using EPA Method 8260B.
- gal = Gallons.
- gpm = Gallons per minute.
- µg/L = Micrograms per liter.
- lbs. = Pounds.
- < = Not detected at or above the stated laboratory detection limit.
- = Not sampled/Not analyzed.

Data collected prior to September, 2004 compiled from the ECM Group Systems Operations Report dated July 9, 2004.

TABLE 3A
WATER WELL DATA
Redwood Oil Facility 114
1855 Guerneville Road, Santa Rosa, California
(Page 1 of 1)

	Well	Well Log Number	Address	City	State	Zip Code	Owner	Well Use	Screen Interval (feet)	Depth to Water (feet)	Total Depth (feet)	Date Installed	Distance from Site (feet)
1			2050 Marlow Road	Santa Rosa	California	95403	Callison	Domestic	—	—	—	—	100
2	07N08W16F	034316	2039 Marlow Road	Santa Rosa	California	95403	Charles Stark	Domestic	72-92	18	92	3/31/1977	150
3			2075 Marlow Road	Santa Rosa	California	95403	Emis	Domestic	—	—	—	—	200
4	07N08W16	067965	2053 Marlow Road	Santa Rosa	California	95403	Charles Stack	Domestic	60-68	40	68	7/4/1961	250
5			1815 Guerneville Road	Santa Rosa	California	95403	Smith	Domestic	—	—	—	—	330
6	07N08W16	050467	2242 Marlow Road	Santa Rosa	California	95403	E.W. Arnold	Domestic	40-52	19	52	6/12/1952	700
7	07N08W16	045974	2244 Marlow Road	Santa Rosa	California	95403	Herb Bronz	Domestic	48-56	23	56	4/19/1957	700
8	07N08W16	013253	2091 Guerneville Road	Santa Rosa	California	95403	G. M. Sanders	Domestic	60-68	28	68	2/29/1967	850
9	07N08W16	052937	2091 Guerneville Road	Santa Rosa	California	95403	Jal Bodwin	Domestic	96-104	33	104	5/26/1959	850
10	07N08W16	080027	1801 Larry Drive	Santa Rosa	California	95403	Rolf Johnson	Domestic	52-60	38	60	8/23/1963	1,000
11	07N08W16	49-1730	2124 Guerneville Road	Santa Rosa	California	95403	Leo H. Felt	Domestic	80-90	15	100	1/18/1952	1,000
12	07N08W16	49-1725	2093 Guerneville Highway	Santa Rosa	California	95403	C. Norton	—	—	—	60	6/1/1948	1,100
13	07N08W16	151066	1793 Larry Drive	Santa Rosa	California	95403	Joan Hamby	Domestic	68-128	20	133	6/11/1986	1,200
14	07N08W16	013263	2586 Marlow Road	Santa Rosa	California	95403	Edgar Ellis	Domestic	48-56	—	56	8/30/1968	1,200
15	07N08W16	052775	2586 Marlow Road	Santa Rosa	California	95403	Al Hembree	Domestic	59-80	60	80	5/3/1963	1,200
16	07N08W16	068102	2603 Marlow Road	Santa Rosa	California	95403	Rolf Johnson	Domestic	32-40	36	40	1/21/1962	1,200
17	07N08W16	067998	2604 Marlow Road	Santa Rosa	California	95403	Faulkner	Domestic	52-60	12	60	6/10/1963	1,200
18	07N08W16	067997	2608 Marlow Road	Santa Rosa	California	95403	Faulkner	Domestic	48-56	12	56	6/12/1963	1,200
19	07N08W16	056948	2626 Marlow Road	Santa Rosa	California	95403	Ed Scomaienchi	Domestic	35-55	17	55	6/23/1972	1,200
20	07N08W16	062723	1575 Marlow Road	Santa Rosa	California	95403	Percy Haggard	Dom/Irr	75-90	82	90	7/26/1961	1,250
21	07N08W16	113135	1575 Marlow Road	Santa Rosa	California	95403	Larsen	Domestic	56-64	47	64	4/24/1964	1,350
22	07N08W16	239863	2700 Marlow Road	Santa Rosa	California	95403	Oh Hing Tam	Domestic	22-62	19	62	11/16/1983	1,400
23	07N08W16	002909	1740 Guerneville Road	Santa Rosa	California	95403	Wm. Bates	Domestic	—	21	81	12/20/1956	1,500
24	07N08W16	023776	2190 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	68-76	23	76	3/10/1957	1,500
25	07N08W16	023777	2190 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	48-56	24	56	3/9/1957	1,500
26	07N08W16	023778	2190 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	124-132	24	132	3/6/1957	1,500
27	07N08W16	045451	2190 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	116-124	42	124	10/17/1957	1,500
28	07N08W16	045452	2190 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	72-80	51	80	10/19/1957	1,500
29	07N08W16	045461	2190 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	68-76	10	76	10/29/1957	1,500
30	07N08W16	045462	2190 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	72-80	12	80	10/29/1957	1,500
31	07N08W16	045471	2190 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	64-72	14	72	12/15/1957	1,500
32	07N08W16	045472	2190 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	76-84	42	84	12/13/1957	1,500
33	07N08W16	045971	2190 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	52-60	29	60	5/1/1957	1,500
34	07N08W16	023799	2192 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	56-64	23	64	8/5/1957	1,500
35	07N08W16	023800	2192 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	48-56	22	56	8/7/1957	1,500
36	07N08W16	026819	2192 Guerneville Road	Santa Rosa	California	95403	Fred Goade	Domestic	132-140	30	165	9/7/1956	1,500
37	07N08W16	117919	1687 Guerneville Road	Santa Rosa	California	95403	Gary Chapin	Domestic	47-67	20	67	11/22/1974	1,700
38	07N08W16	235234	1662 Guerneville Road	Santa Rosa	California	95403	Wm. Hickey	Domestic	118-140	20	140	2/22/1984	1,700
39	07N08W16	49-1735	1673 Guerneville Road	Santa Rosa	California	95403	M.E. Darby	Domestic	None	18	88	9/17/1953	1,700
40	07N08W16	49-1729	1672 Guerneville Road	Santa Rosa	California	95403	Mr. Casey	Domestic	44-54	35	54	11/16/1951	1,800
41	07N08W16	067704	1654 Guerneville Road	Santa Rosa	California	95403	O. J. Orlowski	Domestic	29-49	15	49	8/28/1961	1,850
42	07N08W16	014442	1815 Manor Court	Santa Rosa	California	95403	Silas Boden	Domestic	152-161	6	161	5/29/1973	1,900
43	07N08W16N	056378	1756 Manor Drive	Santa Rosa	California	95403	Dallas Williams	Domestic	25-85	25	85	10/24/1979	2,000
44	07N08W16	061360	1818 Manor Drive	Santa Rosa	California	95403	W. E. Stock	Domestic	32-52	14	52	8/9/1960	2,000
45	07N08W16	014444	1823 Manor Court	Santa Rosa	California	95403	Silas Boden	Domestic	88-98	12	98	6/1/1973	2,000

TABLE 3B
SURFACE WATER DATA
Redwood Oil Facility 114
1855 Guerneville Road, Santa Rosa, California
(Page 1 of 1)

Surface Water Body	Distance From Site (feet)	Direction
Flood Control Channel	1110	South
Paulin Creek	1640	North
Flood Control Chanel	2470	South
Piner Creek	2640	Northwest

TABLE 4
SVE FIELD OBSERVATIONS
REDWOOD OIL FACILITY 114
1855 GUERNEVILLE ROAD
SANTA ROSA, CALIFORNIA

EXTRACTION WELL DATA																
Date	Time	Extraction Well	Well Flow (fpm)	Vapor Temp (°F)	Field Gas Analyzer Reading* (ppmv) INF	Field Gas Analyzer Reading* (ppmv) INT	Field Gas Analyzer Reading* (ppmv) EFF	Vapor Sample ID	Vacuum @ Blower (in. Hg)	Water Sample ID	Electric Meter Reading (kWh) System	Electric Meter Reading (kWh) Station	Totalizer Reading MW1 (gallons)	Totalizer Reading MW7 (gallons)	Totalizer Reading MW9 (gallons)	Effluent Totalizer Reading (gallons)
01/31/05		INITIAL MEASUREMENTS	--	--	--	--	--	--	--	--	16,664	904,586	303,751	860,300	140,550	1,723,907.8
01/31/05	17:45	MW7	--	--	>10,000	0.0	0.0	I-MW7-1 E-MW7-1	7.0	--	16,664	904,586	303,751	860,300	140,550	1,723,907.8
02/01/05	12:00	MW7	--	--	--	--	--	--	10.0	--	--	--	304,380	861,510	141,190	1,731,081.4
02/02/05	12:00	MW7	2350	165	3,650	0.0	0.0	--	9.0	--	11,527	--	305,330	863,040	141,950	1,733,895.0
02/03/05	9:00	MW7	2350	165	1,932	0.0	0.0	I-MW7-2 E-MW7-2	9.0	--	11,642	--	306,130	86,330	142,540	1,736,194.0
02/04/05	9:30	MW7	2350	165	1,337	0.0	0.0	--	7.0	--	11,785	--	306,950	865,800	143,150	1,738,643.0
02/05/05	16:30	MW7	1000	--	267	0.0	0.0	I-MW7-2 E-MW7-2*	10.0	W-EFF W-INT-1 W-INF	11,982	--	307,460	867,830	143,920	1,741,572.0

EXPLANATION:

* = Influent and Effluent Samples collected on February 15, 2005 should have been labeled I-MW7-3 and E-MW7-3

Conversion of in. Hg to inches of water (In. H₂O): 1 in. Hg = 13.61 in. H₂O

fpm = feet per minute

in. Hg = inches of mercury

ppmv = parts per million by volume

Totalizer reading = total gallons of water treated from extraction well

TABLE 5
Vapor Extraction Test Results

Redwood Oil Facility 114
1855 Guerneville Road
Santa Rosa, California

INPUT DATA:

- 1) Air flow rate in standard cubic feet per minute (scfm) at 32°F and 14.7 psia
(Dwyers Integrating Pitot Tubes and many Rotameters read directly in scfm)
- 2) Air pressure and temperature at the measuring device (needed for Pitot tube calcs to give scfm)
- 3) Differential pressure (dP) in inches of water across the Pitot tube (if that's how flow is measured).
- 4) Hydrocarbon content of the air (in ppmv as hexane) 86 lb hexane = 359 SCF at 32°F and 14.7 psig
{for hexane: ppmv = mg/M³ x 24.1 / 86 (86 = molecular wt of hexane)} (for Benzene MW = 78)
- 5) Length of time - usually hours - over which the flow rate occurred

From periodic measurements, a calculation of total pounds of hydrocarbons removed from a well or from a system is made. The input data listed above are measured as specific points in time. To calculate quantities removed, some assumptions must be made about what was happening between measurements. The following assumptions will be used for the sake of consistency:

ASSUMPTIONS:

- 1) Air flow for the period equals the average of the initial and final reading for the period.
- 2) Pressure and temperature for the entire period will be the final reading.
- 3) Hydrocarbon or Benzene concentration for the period equals the average of the initial and final values.
- 4) The hours of operation can be taken from an hour meter, an electric meter, or can be assumed to be equal to the entire time period between measurements if the equipment operated continuously.

DATA & CALCULATIONS:

Sample ID Extraction Well: MW2	Date	Time	Vacuum (In. Hg)	Flow (scfm)	TPHg (ppmv)	Benzene (ppmv)	MTBE (ppmv)	TPHg		Benzene		MTBE	
								Pounds Removed Per Period	Cumulative Pounds Removed	Pounds Removed Per Period	Cumulative Pounds Removed	Pounds Removed Per Period	Cumulative Pounds Removed
I-MW7-1	01/31/05	6:00 PM	7	457	340	0.48	<0.11						
I-MW7-2	02/03/05	10:15 AM	9	588	180	<0.14	<0.11	125.5	125.5	0.1	0.1	0.05	0.05
I-MW7-2*	02/05/05	5:00 PM	10	278	63	<0.16	<0.28	41.4	166.9	0.0	0.2	0.07	0.12

Total Pounds Removed:	TPHg 166.9	Benzene 0.2
	MTBE	0.1

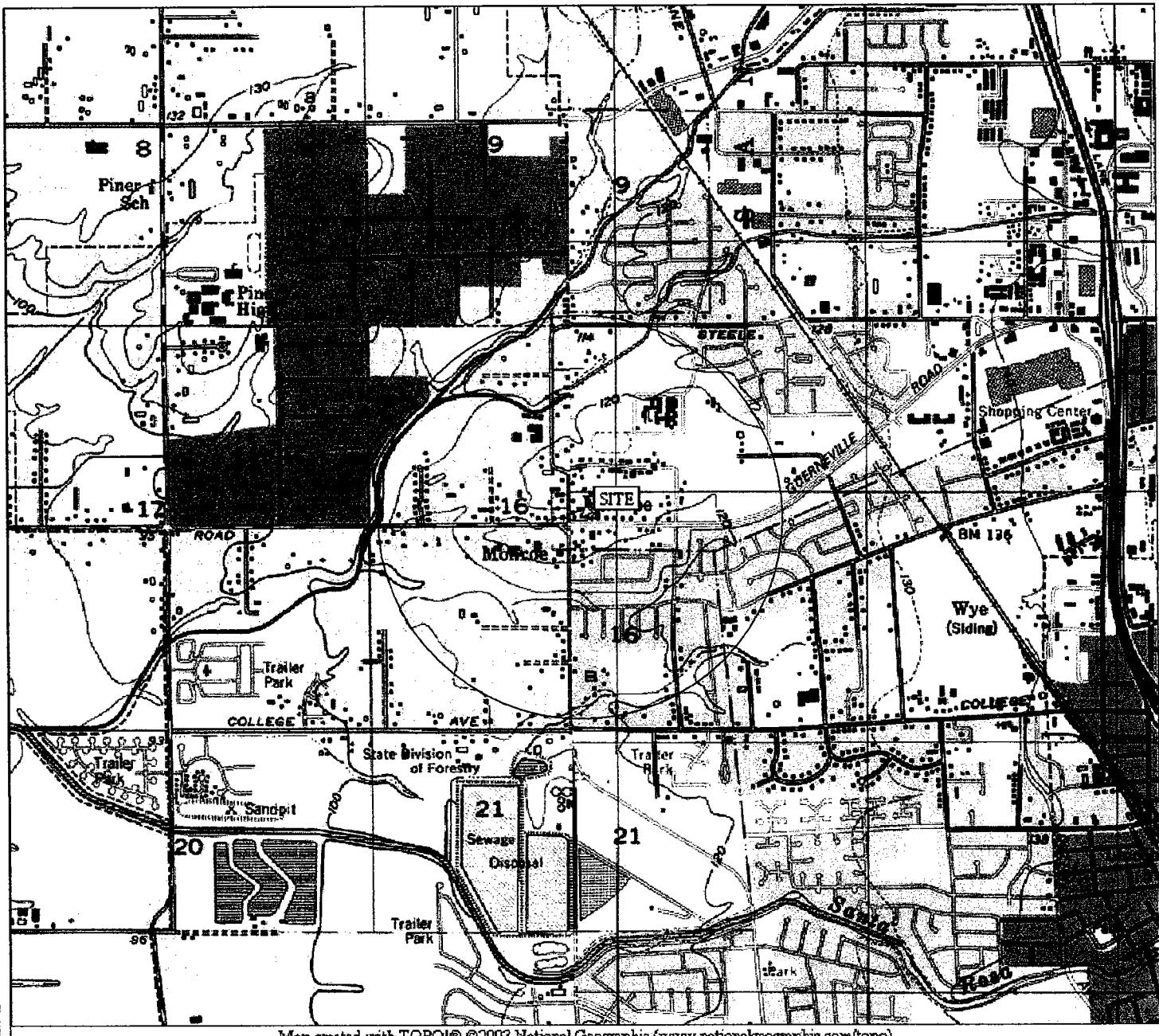
Explanation:

scfm - Standard cubic feet per minute

ppmv - Parts per million by volume

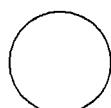
* = Influent and Effluent Samples collected on February 5, 2005 should have been labeled I-MW7-3 and E-MW7-3

** Concentration is at or below the laboratory detection limit. The detection limit is used as the concentration for calculation purposes.



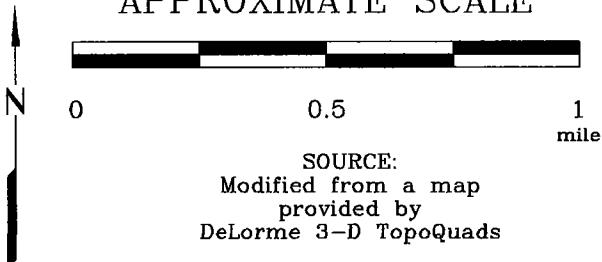
FN 2619TOPO

EXPLANATION



1/2-mile radius circle

APPROXIMATE SCALE



SITE VICINITY MAP

REDWOOD OIL FACILITY 114
1855 Guerneville Road
Santa Rosa, California

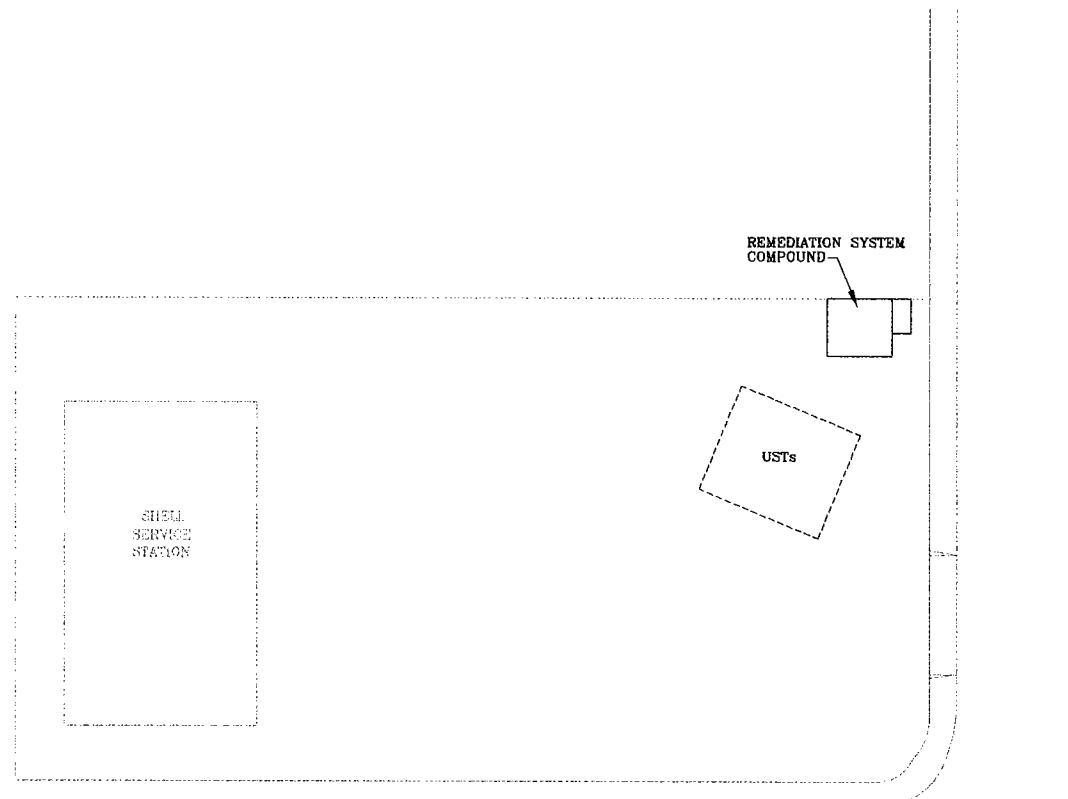
PROJECT NO.

2619

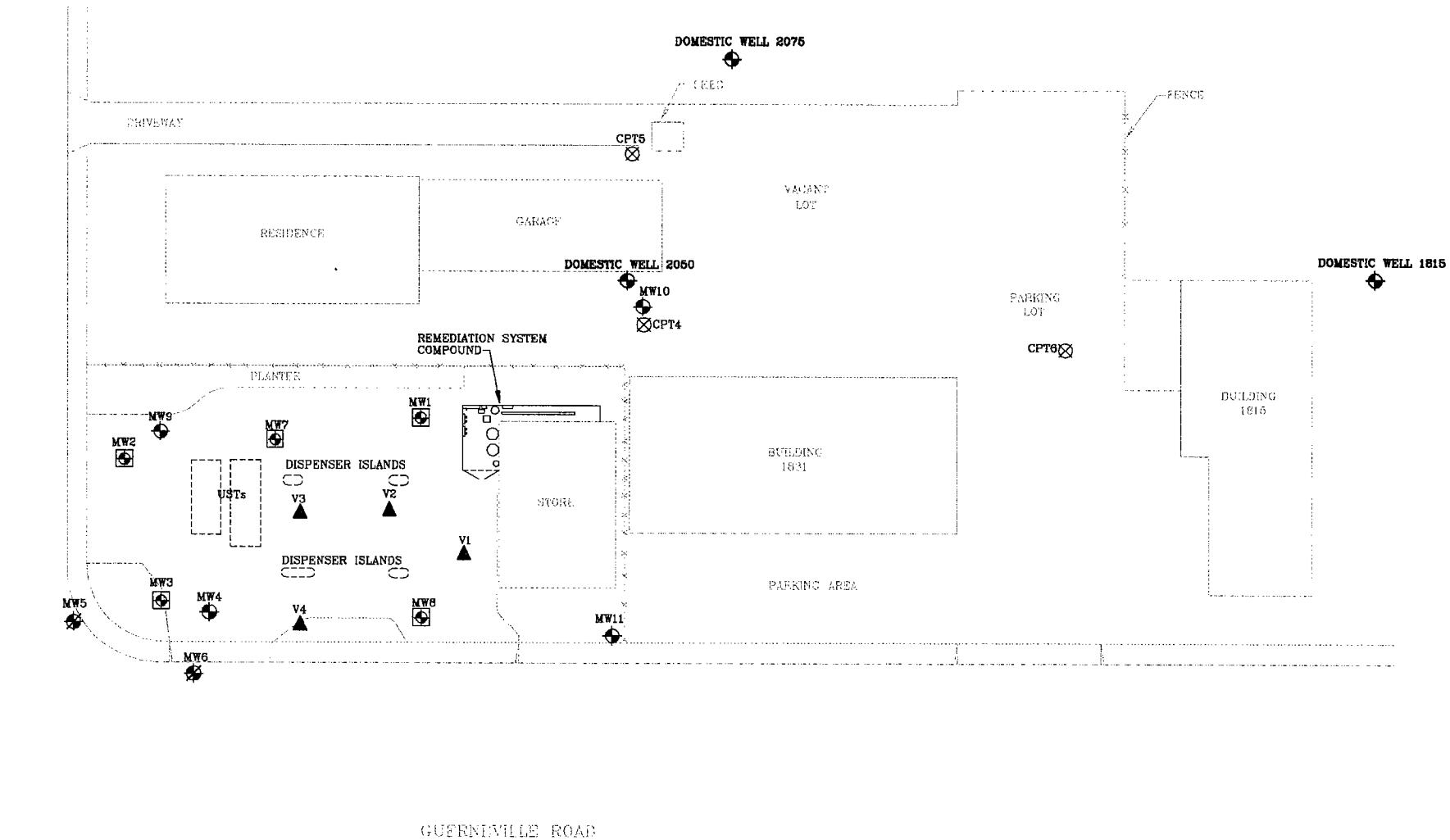
PLATE

1

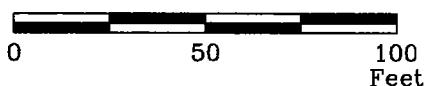
N



MARLOW ROAD



APPROXIMATE SCALE



FN 26190001



GENERALIZED SITE PLAN

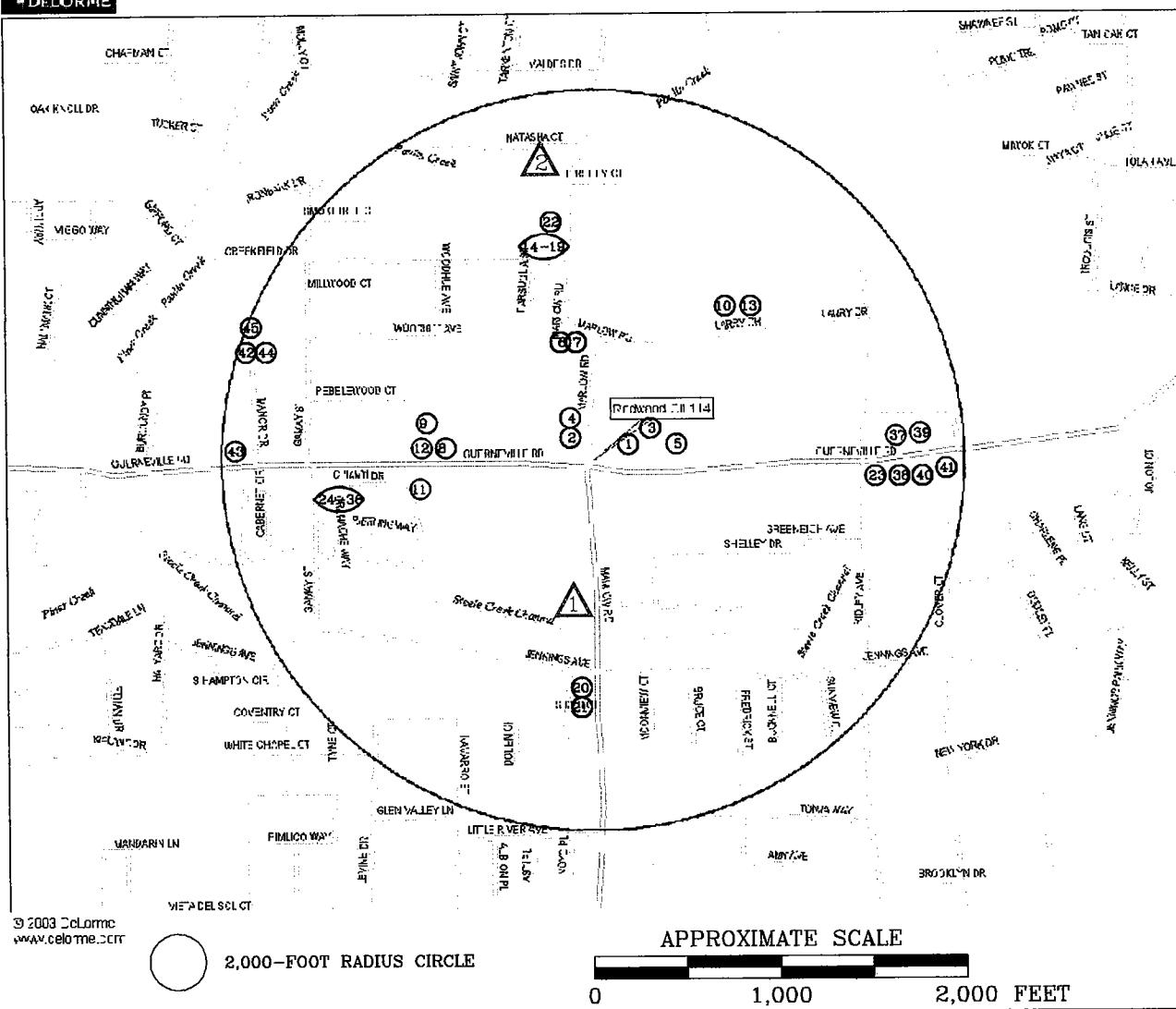
REDWOOD OIL FACILITY 114
1855 Guerneville Road
Santa Rosa, California

EXPLANATION

- MW11 Groundwater Monitoring Well
MW8 Groundwater Recovery Well
MW6 Destroyed Groundwater Monitoring Well
CPT6 Proposed Cone Penetrometer (CPT)
SVE4 Soil Vapor Extraction Well

PROJECT NO.
2619

PLATE
2



FN TOPO SRS

EXPLANATIONSENSITIVE RECEPTORSWATER WELLS

- 1 2050m (100 feet)
- 2 2039m (150 feet)
- 3 2075m (200 feet)
- 4 2053m (250 feet)
- 5 1815g (330 feet)
- 6 2242m (700 feet)
- 7 2244m (700 feet)
- 8 2091g (850 feet)
- 9 2091g (850 feet)
- 10 18011 (1,000 feet)
- 11 2124g (1,000 feet)
- 12 2093g (1,100 feet)
- 13 1793l (1,200 feet)
- 14-19 2586m (1,200 feet)
- 20 1575m (1,250 feet)
- 21 1579m (1,350 feet)
- 22 2700m (1,400 feet)
- 23 1740g (1,500 feet)
- 24-30 2190g (1,500 feet)
- 31 1687g (1,700 feet)
- 32 1662g (1,700 feet)
- 33 1673g (1,700 feet)

1672g (1,800 feet)

1654g (1,850 feet)

1815ma (1,900 feet)

1756ma (2,000 feet)

1818ma (2,000 feet)

1823ma (2,000 feet)

SCHOOLS

- 1 None

HOSPITALS

- 1 None

NOTES

m = Marlow Road
g = Guerneville Road
l = Larry Drive
ma = Manor Court

SURFACE WATER

Flood Control
Channel
(1110 feet)

2 Paulin Creek
(1640 feet)

PROJECT NO.

2619

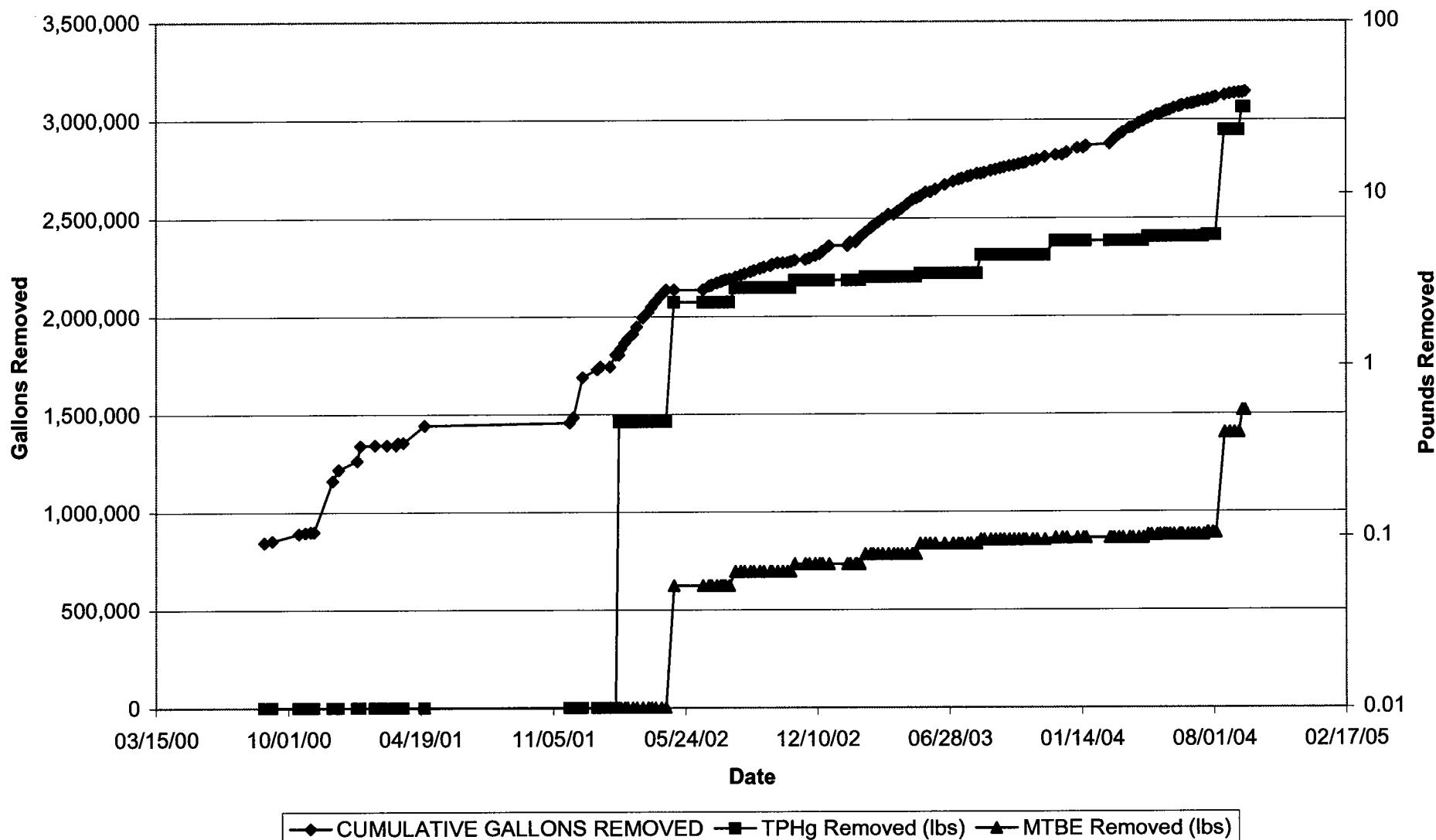
PLATE

3

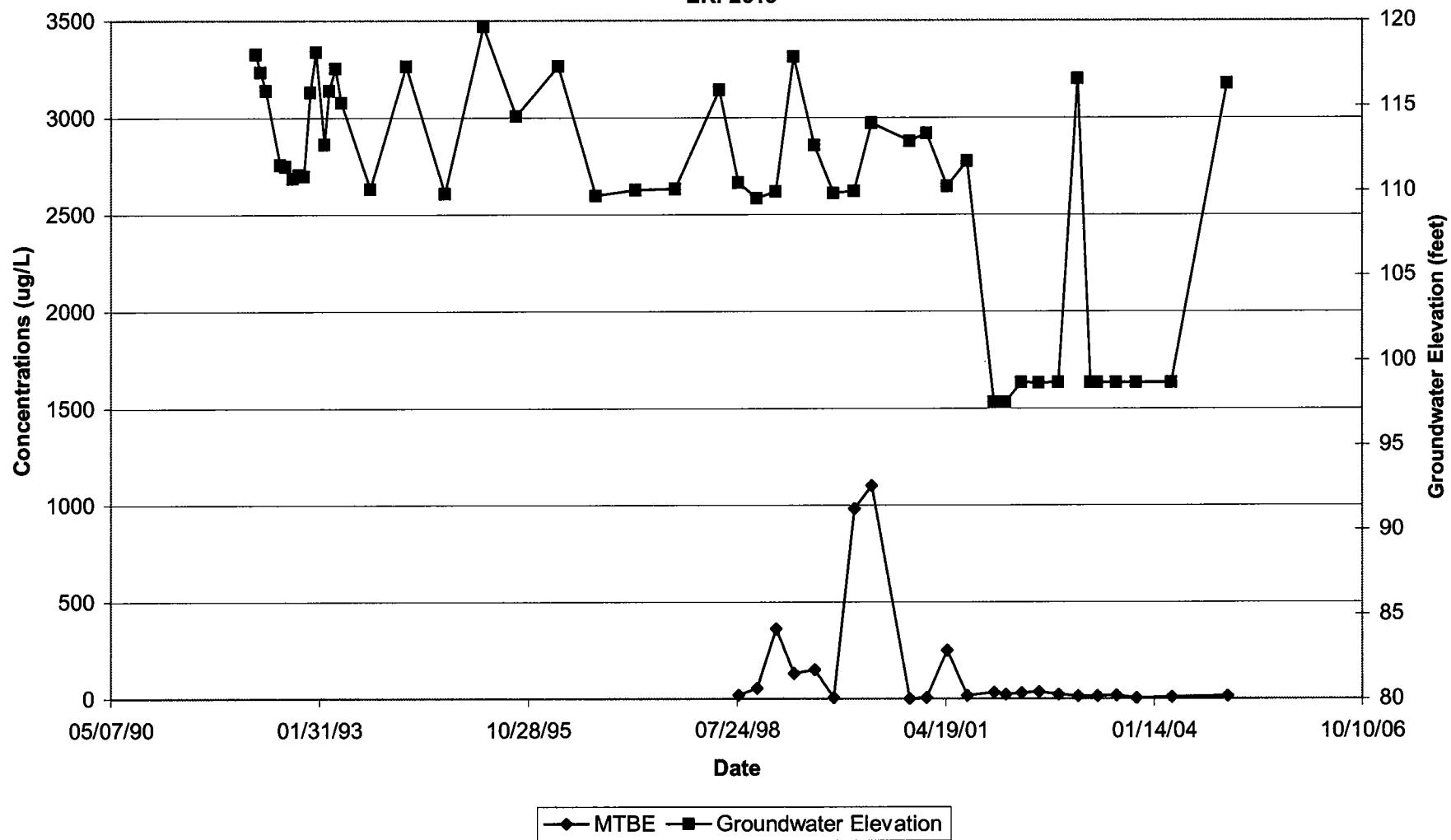
**SENSITIVE RECEPTOR MAP**

REDWOOD OIL FACILITY 114
1855 Guerneville Road
Santa Rosa, California

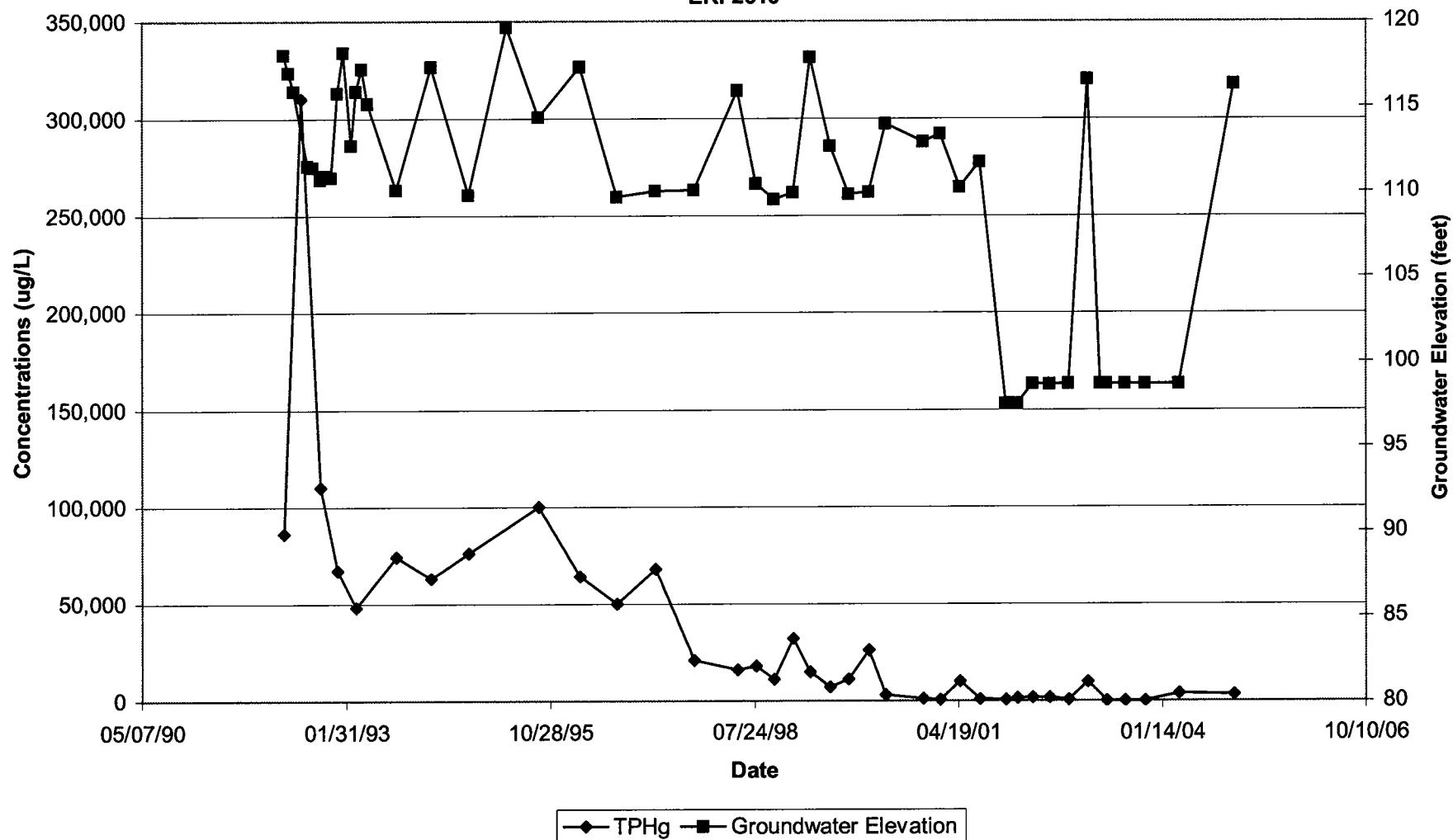
GRAPH 1
TOTAL LIQUID-PHASE HYDROCARBONS REMOVED VS. GALLONS REMOVED
Redwood Oil Company Facility 114
1855 Guerneville Road, Santa Rosa, California
ERI 2619



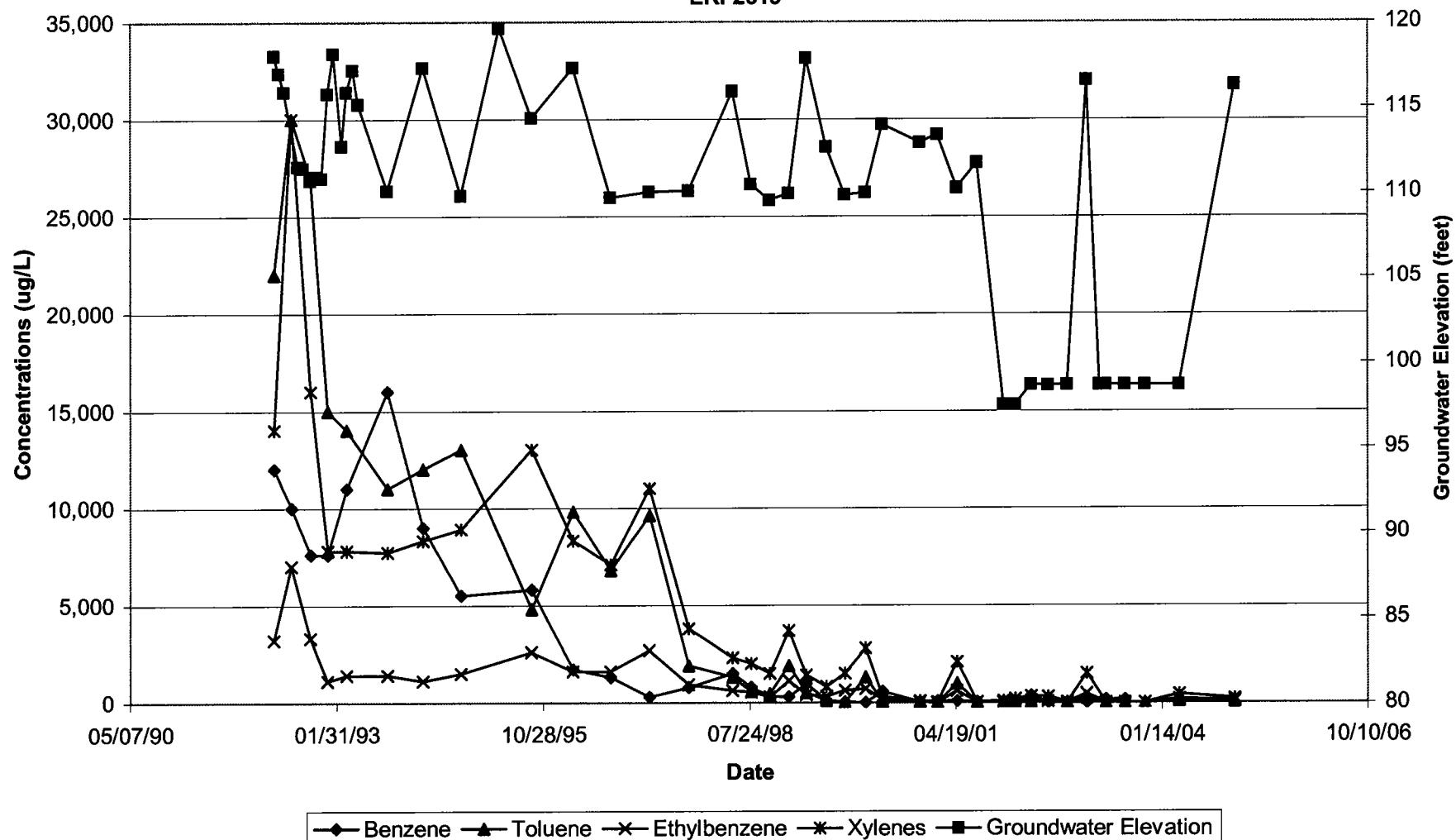
GRAPH 2
GROUNDWATER CONCENTRATIONS OF MTBE VS. TIME - MW7
Redwood Oil Facility 114
1855 Guerneville Road, Santa Rosa, California
ERI 2619



GRAPH 3
GROUNDWATER CONCENTRATIONS OF TPHg VS. TIME - MW7
Redwood Oil Company Facility 114
1855 Guerneville Road, Santa Rosa, California
ERI 2619



GRAPH 4
GROUNDWATER CONCENTRATIONS OF BTEX VS. TIME - MW7
Redwood Oil Company Facility 114
1855 Guerneville Road, Santa Rosa, California
ERI 2619



ATTACHMENT A

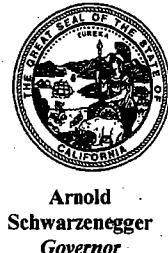
REGULATORY CORRESPONDENCE



California Regional Water Quality Control Board
North Coast Region
Beverly Wasson, Chairman

Alan C. Lloyd, Ph.D.
Agency Secretary

<http://www.waterboards.ca.gov/northcoast>
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403
Phone: 1 (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135



**Arnold
Schwarzenegger**
Governor

February 28, 2005

Mr. Robert Barbieri
Mr. Peter Van Alyea
Redwood Oil Company
P.O. Box 428
Santa Rosa, CA 95402

Gentlemen:

Subject: Extension Request
File: Redwood Oil # 114, 1855 Guerneville Road, Santa Rosa,
Case No. 1TSR088

On February 9, 2005, Environmental Resolutions Inc. (ERI) requested an extension to April 29, 2005 for the submittal of a work plan to define the lateral and vertical extent of contamination. The ten-week extension request was denied followed by a subsequent six-week extension request to March 31, 2005. Due to the number of impacted water supply wells in the area, this case has been elevated to a higher priority and work must progress in a timely manner. Therefore, the work plan is due March 18, 2005.

If you have any questions you may call me at (707) 576-2675.

Sincerely,

Joan Fleck
Engineering Geologist

JEF:chl/022805_JEF_ROGuern

Cc: Ms. Judy Emis, P.O. Box 18, Mount Angel, Oregon, 97362
Ms. Christine Emis, 2075 Marlow Road, Santa Rosa, CA 95401
Mr. Travis Finn, Environmental Resolutions, Inc. 931 Downing Circle, Lincoln, CA 95648
Environmental Resolutions, 601 North McDowell Boulevard, Petaluma, CA 94954
The Callison Family, 2050 Marlow Road, Santa Rosa, CA 95401
Ms. Jan O'Neil, 726 College Avenue, Santa Rosa, CA 95404
Mr. Reggie Smith, 1815 Guerneville Road, Santa Rosa, CA 95401

California Environmental Protection Agency

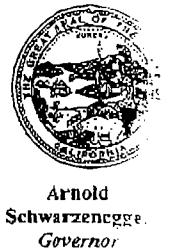
Recycled Paper



California Regional Water Quality Control Board
North Coast Region
William R. Massey, Chairman

Alan C. Lloyd, Ph.D.
Agency Secretary

<http://www.waterboards.ca.gov/>
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403
Phone: 1 (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135



January 5, 2005

Mr. Robert Barbieri
Mr. Peter Van Alyea
Redwood Oil Company
P.O. Box 428
Santa Rosa, CA 95402

Gentlemen:

Subject: Transmittal of Well Results and Work Plan Request
File: Redwood Oil # 114, 1855 Guerneville Road, Santa Rosa,
Case No. 1TSR088

The purpose of this letter is to provide you with the analytical results of two additional water supply wells in the vicinity of 1855 Guerneville Road and request the submittal of a work plan to investigate the lateral and vertical extent of groundwater contamination pursuant to Cleanup and Abatement Order No. 91-115, Provision 2 (a).

As you know, ECM staff on your behalf has collected groundwater samples from the water supply well located at 2050 Marlow Road since April of 1999. The cumulative results show MtBE detections beginning in April of 2002 and consistently since then at concentrations up 11 parts per billion (ppb). We understand that the well is used for irrigation and the domestic water supply is a municipal water connection.

Two additional water supply wells in the area also contain MtBE:

- The water supply well located at 1815 Guerneville Road was tested five times from July 2003 to July 2004 by the property owner and was shown to contain MtBE at concentrations ranging from 0.55 to 2.6 ug/l. MtBE was also detected in shallow groundwater monitoring wells. An on site source of MtBE at 1815 Guerneville Road was not found. The well at this property is the sole source of water. The results are included as Attachment A.
- The water supply well located at 2075 Marlow Road was sampled on December 3, 2004 on behalf of the property owner of 1815 Guerneville Road. The analytical results show the presence of MtBE at 1.0 ug/l. The well at this property is the sole source of water. The results are included as Attachment B.

California Environmental Protection Agency

Recycled Paper

January 5, 2005

Therefore, additional work must be conducted to investigate the extent of groundwater contamination including MtBE. We acknowledge that a subsurface investigation was conducted at 1855 Guerneville Road in March 2002 including three Cone Penetrometer Test (CPT) test locations. However, none of the CPT borings and sampling locations were placed between the underground storage tank system and the water supply well at 2050 Marlow Road. In addition, site conditions may have changed since the completion of the CPT work.

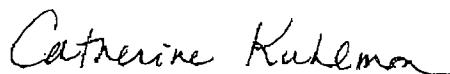
Therefore, a work plan must be submitted to investigate the lateral and vertical extent of groundwater contamination. In addition, an updated sensitive receptor survey must be conducted to identify the locations and use of water supply wells in the area. The water supply wells located at 2050 Marlow Road, 2075 Marlow Road and 1815 Guerneville Road must be tested monthly beginning in January 2005 using EPA Method 8260 for all fuel oxygenates.

We also require that you submit a copy of your access agreements with the property owners showing entry rights to the wells. Our records show that ECM group on your behalf has previously tested the well at 2075 Marlow Road. However, the property owners indicate that they are unaware of any testing and have not received copies of the analytical results. All test results must be forwarded to well owners for their use and information.

The work plan is due within 45 days of issuance of this letter. All other compliance dates will be identified in a revised Cleanup and Abatement Order. Unless Redwood Oil Company demonstrates that the retail gasoline station at 1855 Guerneville Road is not the source of MtBE in the water supply wells, Redwood Oil Company will be directed to provide the well owners with an alternative potable water source.

If you have any questions you may call Joan Fleck at (707) 576-2675 or David Evans at (707) 576-2703.

Sincerely,



Catherine E. Kuhlman
Executive Officer

JEP:dh/010505_JEF_ROGuernevilleRd

Cc: Ms. Judy Emis, P.O. Box 18, Mount. Angel, Oregon, 97362
Ms. Christine Emis, 2075 Marlow Road, Santa Rosa, CA 95401
Environmental Resolutions, 532 E. Washington, Petaluma, CA 94952-24
The Callisons, 2050 Marlow Road, Santa Rosa, CA 95401
Ms. Jan O'Neil, 726 College Avenue, Santa Rosa, Ca 95404
→ Mr. Joe Bloom, 745 Frontenak Square, St. Louis, MS 63131
Mr. Reggie Smith, 1815 Guerneville Road, Santa Rosa, CA 95401
Mr. Sal Priolo, 2431 Humboldt Avenue, Santa Rosa, CA 95404

California Environmental Protection Agency

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TABLE 3
FORMER PREMCO MACHINE SHOP
1815 GUERNÉVILLE ROAD, SANTA ROSA, CA
TABULATED ANALYTICAL RESULTS - GROUNDWATER
VOLATILE ORGANIC COMPOUNDS (EPA METHOD 8260B)



Alpha Analytical Laboratories Inc.

208 Mason Street, Ukiah, California 95482

e-mail: clientservices@alpha-labs.com • Phone: (707) 468-0401 • Fax: (707) 468-5267

CHEMICAL EXAMINATION REPORT

Page 3 of 27

EBA Wastechnologies
825 Sonoma Ave. Suite C
Santa Rosa, CA 95404
Attn: David Noren

Report Date: 12/07/04 13:25
Project No: 01-896
Project ID: Premco Machine

<u>Order Number</u>	<u>Receipt Date/Time</u>	<u>Client Code</u>	<u>Client PO/Reference</u>
A412091	12/03/2004 11:25	EBA	

Alpha Analytical Laboratories, Inc.

Well - 2075 Marlow (A412091-01)	METHOD	BATCH	PREPARED	ANALYZED	DILUTION	RESULT	PQL	NOTE
				Sample Type: Water		Sampled: 12/03/04 09:15		
Volatile Organic Compounds by EPA Method 8260B (cont'd)								
Chloroethane	EPA 8260B	"	"	12/04/04	"	ND "	0.50	
Chloroform		"	"	"	"	ND "	0.50	
Chlorotoluene		"	"	"	"	ND "	0.50	
2-Chlorotoluene		"	"	"	"	ND "	0.50	
4-Chlorotoluene		"	"	"	"	ND "	0.50	
Dibromochloromethane		"	"	"	"	ND "	0.50	
1,2-Dibromo-3-chloropropane		"	"	"	"	ND "	0.50	
1,2-Dibromoethane (EDB)		"	"	"	"	ND "	0.50	
Dibromomethane		"	"	"	"	ND "	0.50	
1,2-Dichlorobenzene		"	"	"	"	ND "	0.50	
1,3-Dichlorobenzene		"	"	"	"	ND "	0.50	
1,4-Dichlorobenzene		"	"	"	"	ND "	0.50	
Dichlorodifluoromethane		"	"	"	"	ND "	0.50	
1,1-Dichloroethane		"	"	"	"	ND "	0.50	
1,2-Dichloroethane		"	"	"	"	ND "	0.50	
1,1-Dichloroethene		"	"	"	"	ND "	0.50	
cis-1,2-Dichloroethene		"	"	"	"	ND "	0.50	
trans-1,2-Dichloroethene		"	"	"	"	ND "	0.50	
1,2-Dichloropropene		"	"	"	"	ND "	0.50	
1,3-Dichloropropene		"	"	"	"	ND "	0.50	
2,2-Dichloropropene		"	"	"	"	ND "	0.50	
1,1-Dichloropropene		"	"	"	"	ND "	0.50	
cis-1,3-Dichloropropene		"	"	"	"	ND "	0.50	
trans-1,3-Dichloropropene		"	"	"	"	ND "	0.50	
Ethylbenzene		"	"	"	"	ND "	0.50	
Hexachlorobutadiene		"	"	"	"	ND "	0.50	
Isopropylbenzene		"	"	"	"	ND "	0.50	
p-Isopropyltoluene		"	"	"	"	ND "	0.50	
Methyl ethyl ketone		"	"	"	"	ND "	1.0	
Methyl isobutyl ketone		"	"	"	"	ND "	1.0	
Methyl tert-butyl ether		"	"	"	"	1.0 "	0.50	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Karen A. Daly For Sheri L. Speaks
Project Manager

12/7/2004

ATTACHMENT B

**LABORATORY ANALYSIS REPORTS
AND CHAIN-OF-CUSTODY**

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Glenn Matteucci
Environmental Resolutions
601 North McDowell Blvd.
Petaluma, CA 94954

Certificate ID: 42223 - 2/9/2005 11:29:07 AM

Order Number: 42223
Project Name: Redwood Oil

Date Received: 2/1/2005 12:55:31 PM
P.O. Number: 261905

Certificate of Analysis - Final Report

On February 01, 2005, samples were received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

<u>Matrix</u>	<u>Test</u>	<u>Method</u>	<u>Comments</u>
Air	8260Petroleum TPH as Gasoline-GCMS	EPA 8260B GC-MS	

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346).
If you have any questions regarding this report, please call us at 408-588-0200 ext. 225.

Sincerely,



Laurie Glantz-Murphy
Laboratory Director

Entech Analytical Labs, Inc.

3334 Victor Court, Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

Environmental Resolutions
601 North McDowell Blvd.
Petaluma, CA 94954
Attn: Glenn Matteucci

Project Name: Redwood Oil
Date Received: 2/1/2005
P.O. Number: 261905
Sample Collected by: Client

Certificate of Analysis - Data Report

Lab #: 42223-001 Sample ID: E-MW7-1 Matrix: Air Sample Date: 1/31/2005 6:00 PM

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.063	ppmV	N/A	N/A	02/01/2005	WMS2050201
Toluene	ND		1	0.053	ppmV	N/A	N/A	02/01/2005	WMS2050201
Ethyl Benzene	ND		1	0.046	ppmV	N/A	N/A	02/01/2005	WMS2050201
Xylenes, Total	ND		1	0.092	ppmV	N/A	N/A	02/01/2005	WMS2050201
Methyl-t-butyl Ether	ND		1	0.11	ppmV	N/A	N/A	02/01/2005	WMS2050201

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	91.2	75 - 125	Analyzed by: Xbian
Dibromofluoromethane	103	75 - 125	Reviewed by: MTU
Toluene-d8	98.1	75 - 125	

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	2.5	ppmV	N/A	N/A	02/01/2005	WMS2050201
Surrogate Surrogate Recovery Control Limits (%)									
Analyzed by: Xbian									
Reviewed by: MTU									
4-Bromofluorobenzene	95.4		75 - 125						
Dibromofluoromethane	100		75 - 125						
Toluene-d8	94.9		75 - 125						

Detection Limit = Detection Limit for Reporting.

ND = Not Detected at or above the Detection Limit.

DF = Dilution and/or Prep Factor including sample volume adjustments.

2/9/2005 11:12:55 AM - lgantz

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

Environmental Resolutions
601 North McDowell Blvd.
Petaluma, CA 94954
Attn: Glenn Matteucci

Project Name: Redwood Oil
Date Received: 2/1/2005
P.O. Number: 261905
Sample Collected by: Client

Certificate of Analysis - Data Report

Lab # : 42223-002 Sample ID: I-MW7-1 Matrix: Air Sample Date: 1/31/2005 6:00 PM

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	0.48		1	0.063	ppmV	N/A	N/A	02/03/2005	WMS2050203
Toluene	0.41		1	0.053	ppmV	N/A	N/A	02/03/2005	WMS2050203
Ethyl Benzene	9.0		1	0.046	ppmV	N/A	N/A	02/03/2005	WMS2050203
Xylenes, Total	22		1	0.092	ppmV	N/A	N/A	02/03/2005	WMS2050203
Methyl-t-butyl Ether	ND		1	0.11	ppmV	N/A	N/A	02/03/2005	WMS2050203

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	94.4	75 - 125	Analyzed by: MTu
Dibromofluoromethane	101	75 - 125	Reviewed by: LGLANTZ
Toluene-d8	99.5	75 - 125	

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	340		25	63	ppmV	N/A	N/A	02/03/2005	WMS2050203
Surrogate Surrogate Recovery Control Limits (%)									
Analyzed by: MTu									
Reviewed by: LGLANTZ									
4-Bromofluorobenzene 96.0 75 - 125									
Dibromofluoromethane 96.9 75 - 125									
Toluene-d8 101 75 - 125									

Detection Limit = Detection Limit for Reporting.

ND = Not Detected at or above the Detection Limit.

DF = Dilution and/or Prep Factor including sample volume adjustments.

2/9/2005 11:12:57 AM - lgantz

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank / Laboratory Control Spike / Duplicate Results

Reviewed by: MTU - 02/02/05

QC Batch ID: WMS2050201 Analysis Date: 2/1/2005

Liquid Conc. Units: µg/L

Method EPA 8260B

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	<0.2	20.0	24	LCS	2/1/2005	119			80 - 120
Benzene	<0.2	20.0	21	LCS	2/1/2005	104			80 - 120
Chlorobenzene	<0.2	20.0	20	LCS	2/1/2005	99.5			80 - 120
Methyl-t-butyl Ether	<0.3	20.0	23	LCS	2/1/2005	117			80 - 120
Toluene	<0.2	20.0	20	LCS	2/1/2005	98.0			80 - 120
Trichloroethylene	<0.2	20.0	21	LCS	2/1/2005	107			80 - 120
1,1-Dichloroethene	<0.2	20.0	24	LCSD	2/1/2005	119	0.0	25	80 - 120
Benzene	<0.2	20.0	20	LCSD	2/1/2005	98.0	5.5	25	80 - 120
Chlorobenzene	<0.2	20.0	18	LCSD	2/1/2005	92.0	7.8	25	80 - 120
Methyl-t-butyl Ether	<0.3	20.0	21	LCSD	2/1/2005	105	10	25	80 - 120
Toluene	<0.2	20.0	19	LCSD	2/1/2005	94.5	3.6	25	80 - 120
Trichloroethylene	<0.2	20.0	20	LCSD	2/1/2005	102	4.3	25	80 - 120

Entech Analytical Labs, Inc.

3334 Victor Court, Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Matrix Spike / Duplicate Results Liquid

Reviewed by: MTU - 02/02/05

QC Batch ID: WMS2050201

Analysis Date: 2/1/2005

Method EPA 8260B		Sample Result	Spike Amount	Spike Result	QC Type	Analysis Date	% Recovery	Conc. Units: µg/L	
Parameter	SampleNumber:							RPD	Limits
MS	SampleNumber: 42166-002	ND	20	25.2	MS	2/1/2005	126		65 - 135
1,1-Dichloroethene		ND	20	20.3	MS	2/1/2005	102		65 - 135
Benzene		ND	20	18.6	MS	2/1/2005	93.0		65 - 135
Chlorobenzene		ND	20	22.5	MS	2/1/2005	113		65 - 135
Methyl-t-butyl Ether		ND	20	19.9	MS	2/1/2005	99.5		65 - 135
Toluene		ND	20	20.3	MS	2/1/2005	102		65 - 135
Trichloroethylene		ND	20	26.3	MSD	2/1/2005	132	4.3	25
MSD	SampleNumber: 42166-002	ND	20	20.8	MSD	2/1/2005	104	2.4	25
1,1-Dichloroethene		ND	20	19.3	MSD	2/1/2005	96.5	3.7	25
Benzene		ND	20	24.2	MSD	2/1/2005	121	7.3	25
Chlorobenzene		ND	20	20.4	MSD	2/1/2005	102	2.5	25
Methyl-t-butyl Ether		ND	20	20.8	MSD	2/1/2005	104	2.4	25

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank / Laboratory Control Spike / Duplicate Results

Reviewed by: MTU - 02/02/05

QC Batch ID: WMS2050201 Analysis Date: 2/1/2005

Method GC-MS

Liquid Conc. Units: µg/L

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<6	250.0	300	LCS	2/1/2005	120			65 - 135
Surrogate % Recovery Control Limits									
4-Bromofluorobenzene	93	75 - 125							
Dibromofluoromethane	109	75 - 125							
Toluene-d8	93.4	75 - 125							
TPH as Gasoline	<6	250.0	290	LCSD	2/1/2005	116	3.7	25	65 - 135
Surrogate % Recovery Control Limits									
4-Bromofluorobenzene	93.6	75 - 125							
Dibromofluoromethane	114	75 - 125							
Toluene-d8	92.6	75 - 125							

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank / Laboratory Control Spike / Duplicate Results

Reviewed by: LGLANTZ - 02/04/05

QC Batch ID: WMS2050203 Analysis Date: 2/3/2005

Method EPA 624

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	<0.3	20.0	20	LCS	2/3/2005	101			80 - 120
Benzene	<0.2	20.0	19	LCS	2/3/2005	93.5			80 - 120
Chlorobenzene	<0.2	20.0	19	LCS	2/3/2005	96.0			80 - 120
Toluene	<0.2	20.0	19	LCS	2/3/2005	95.0			80 - 120
Trichloroethene	<0.2	20.0	19	LCS	2/3/2005	97.0			80 - 120
1,1-Dichloroethene	<0.3	20.0	21	LCSD	2/3/2005	105	3.9	25	80 - 120
Benzene	<0.2	20.0	19	LCSD	2/3/2005	93.0	0.54	25	80 - 120
Chlorobenzene	<0.2	20.0	19	LCSD	2/3/2005	96.0	0.0	25	80 - 120
Toluene	<0.2	20.0	19	LCSD	2/3/2005	96.5	1.6	25	80 - 120
Trichloroethene	<0.2	20.0	19	LCSD	2/3/2005	95.0	2.1	25	80 - 120

Entech Analytical Labs, Inc.

3334 Victor Court
Santa Clara, CA 95054

(408) 588-0200
(408) 588-0201 - Fax

Chain of Custody / Analysis Request

Attention to: Glenn Matteucci		Phone No.: 707.766.2000	Purchase Order No.:	Invoice to: (If Different)	Phone:										
Company Name: Environmental Resolutions, Inc.		Fax No.: 707.789.0414	Project No.: 261905	Company:	Quote No.:										
Mailing Address: 601 North McDowell Blvd.		Email Address: gmatteucci@eri-us.com	Project Name: Redwood Oil	Billing Address: (If Different)											
City: Petaluma		State: CA	Zip Code: 94954	Project Location: 1855 Guerneville Road	City: Santa Rosa										
					State: CA										
					Zip:										
Sampler: M. Herman		Field Org. Code:	Turn Around Time	GC/MS Methods			GC Methods			General Chemistry					
			<input type="checkbox"/> Same Day <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 4 Day <input type="checkbox"/> 5 Day <input type="checkbox"/> 10 Day	No. of Containers	EPA-8260B	MTBE	TPH Gas 3 by 8260B	Oxygenates (MTBE, TBA, TPA, DME, TAME)	Lead Scavengers (1,2-DGA & EDGA)	Etanol	PAH - 8270C	PCB - 8082	Motor Oil	Other	
Global ID:					Base Neutral/Acid Organics	8270C Q	PAH - 8270C SM Q	PCB - 8082 Q	8015M/8220						
Order ID:		Sample		Matrix	TPH Extractable	Diesel	Motor Oil	PCB	8015M	8015M	PCB	8082	Motor Oil	Other	
Client ID / Field Point	Lab. No.	Date	Time		W/S Gel Cleanup	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
E-MW7-1		1/31/05	1800	-											
I-MW7-1		1/31/05	1800	-											
Special Instructions or Comments															
Relinquished by:	Received by:	Date:	Time:	Metals:										<input type="checkbox"/> EDD Report	
		2/1/05	0930	Al, As, Sb, Ba, Be, Bi, B, Cd, Ce, Ca, Cr, Co, Cs, Cu, Fe, Pb, Mg, Mn, Ga, Ge, Hg, In, Li, Mo, Ni, P, K, Si, Ag, Na, S, Se, Sr, Ta, Te, Ti, Sn, Ti, Zn, V, W, Zr										<input type="checkbox"/> EDF Report	
Relinquished by:	Received by:	Date:	Time:	Plating										<input type="checkbox"/>	
		2/1/05	1225	LUFT-5										<input type="checkbox"/>	
Relinquished by:	Received by:	Date:	Time:	RCRA-8										<input type="checkbox"/>	
				PPM-13										<input type="checkbox"/>	
				CAM-17										<input type="checkbox"/>	
Total Circle Below if Observed															

June 2004

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Glenn Matteucci
Environmental Resolutions
601 North McDowell Blvd.
Petaluma, CA 94954

Certificate ID: 42294 - 2/8/2005 2:37:41 PM

Order Number: 42294
Project Name: Redwood Oil

Date Received: 2/4/2005 2:13:39 PM
P.O. Number: 261905

Certificate of Analysis - Final Report

On February 04, 2005, samples were received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

<u>Matrix</u>	<u>Test</u>	<u>Method</u>	<u>Comments</u>
Air	8260Petroleum TPH as Gasoline-GCMS	EPA 8260B GC-MS	

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346).
If you have any questions regarding this report, please call us at 408-588-0200 ext. 225.

Sincerely,



Laurie Glantz-Murphy
Laboratory Director

Entech Analytical Labs, Inc.

3334 Victor Court, Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

Environmental Resolutions
601 North McDowell Blvd.
Petaluma, CA 94954
Attn: Glenn Matteucci

Project Name: Redwood Oil
Date Received: 2/4/2005
P.O. Number: 261905
Sample Collected by: Client

Certificate of Analysis - Data Report

Lab # : 42294-001	Sample ID: E-MW7-2	Matrix: Air	Sample Date: 2/3/2005	10:00 AM
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Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.063	ppmV	N/A	N/A	02/04/2005	WMS2050204
Toluene	ND		1	0.053	ppmV	N/A	N/A	02/04/2005	WMS2050204
Ethyl Benzene	ND		1	0.046	ppmV	N/A	N/A	02/04/2005	WMS2050204
Xylenes, Total	ND		1	0.092	ppmV	N/A	N/A	02/04/2005	WMS2050204
Methyl-t-butyl Ether	ND		1	0.11	ppmV	N/A	N/A	02/04/2005	WMS2050204

Surrogate	Surrogate Recovery	Control Limits (%)	Analyzed by: MTu
4-Bromofluorobenzene	88.2	75 - 125	Reviewed by: GGUEORGUIEVA
Dibromofluoromethane	98.9	75 - 125	
Toluene-d8	102	75 - 125	

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	2.5	ppmV	N/A	N/A	02/04/2005	WMS2050204
Surrogate	Surrogate Recovery	Control Limits (%)	Analyzed by: MTu						
4-Bromofluorobenzene	92.2	75 - 125	Reviewed by: GGUEORGUIEVA						
Dibromofluoromethane	96.2	75 - 125							
Toluene-d8	98.3	75 - 125							

Detection Limit = Detection Limit for Reporting.

ND = Not Detected at or above the Detection Limit.

DF = Dilution and/or Prep Factor including sample volume adjustments.

2/8/2005 2:34:46 PM - lgantz

Entech Analytical Labs, Inc.

3334 Victor Court, Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

Environmental Resolutions
601 North McDowell Blvd.
Petaluma, CA 94954
Attn: Glenn Matteucci

Project Name: Redwood Oil
Date Received: 2/4/2005
P.O. Number: 261905
Sample Collected by: Client

Certificate of Analysis - Data Report

Lab #: 42294-002 Sample ID: I-MW7-2 Matrix: Air Sample Date: 2/3/2005 10:15 AM

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	0.14	1	1	0.063	ppmV	N/A	N/A	02/04/2005	WMS2050204
Toluene	0.35	1	1	0.053	ppmV	N/A	N/A	02/04/2005	WMS2050204
Ethyl Benzene	1.6	1	1	0.046	ppmV	N/A	N/A	02/04/2005	WMS2050204
Xylenes, Total	6.5	1	1	0.092	ppmV	N/A	N/A	02/04/2005	WMS2050204
Methyl-t-butyl Ether	ND	1	1	0.11	ppmV	N/A	N/A	02/04/2005	WMS2050204

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	90.3	75 - 125	Analyzed by: MTu
Dibromofluoromethane	97.2	75 - 125	Reviewed by: GGUEORGUIEVA
Toluene-d8	102	75 - 125	

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	180	2.5	1	6.3	ppmV	N/A	N/A	02/04/2005	WMS2050204
Surrogate Surrogate Recovery Control Limits (%)									
Analyzed by: MTu									
Reviewed by: GGUEORGUIEVA									
4-Bromofluorobenzene 90.7 75 - 125									
Dibromofluoromethane 92.0 75 - 125									
Toluene-d8 99.6 75 - 125									

Detection Limit = Detection Limit for Reporting.

ND = Not Detected at or above the Detection Limit.

DF = Dilution and/or Prep Factor including sample volume adjustments.

2/8/2005 2:34:48 PM - lgantz

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank

Air

QC Batch ID: WMS2050204

Analysis Date: 2/4/2005

Method Blank	Method: EPA 8260B			
Parameter	Result	DF	PQLR	Units
Benzene	ND	1	0.063	ppmV
Ethyl Benzene	ND	1	0.046	ppmV
Methyl-t-butyl Ether	ND	1	0.11	ppmV
Toluene	ND	1	0.053	ppmV
Xylenes, Total	ND	1	0.092	ppmV
Surrogate for Blank	% Recovery	Control Limits		
4-Bromofluorobenzene	89.7	75	-	125
Dibromofluoromethane	98.2	75	-	125
Toluene-d8	101	75	-	125

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank

Air

QC Batch ID: WMS2050204

Analysis Date: 2/4/2005

Method Blank		Method: GC-MS			
Parameter		Result	DF	PQLR	Units
TPH as Gasoline		ND	1	2.5	ppmV
Surrogate for Blank % Recovery Control Limits					
4-Bromofluorobenzene	93.8	75 - 125			
Dibromofluoromethane	95.5	75 - 125			
Toluene-d8	98.2	75 - 125			

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

Quality Control - Method Blank / Laboratory Control Spike / Duplicate Results

Reviewed by: LGLANTZ - 02/04/05

QC Batch ID: WMS2050204 Analysis Date: 2/4/2005

Method EPA 8260B

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	Liquid RPD	Conc. RPD Limits	Units: µg/L Recovery Limits
1,1-Dichloroethene	<0.2	20.0	22	LCS	2/4/2005	108			80 - 120
Benzene	<0.2	20.0	20	LCS	2/4/2005	98.5			80 - 120
Chlorobenzene	<0.2	20.0	20	LCS	2/4/2005	102			80 - 120
Methyl-t-butyl Ether	<0.3	20.0	21	LCS	2/4/2005	106			80 - 120
Toluene	<0.2	20.0	21	LCS	2/4/2005	103			80 - 120
Trichloroethylene	<0.2	20.0	20	LCS	2/4/2005	102			80 - 120
Surrogate	% Recovery	Control Limits							
4-Bromofluorobenzene	92.4	75	-	125					
Dibromofluoromethane	99.6	75	-	125					
Toluene-d8	96.2	75	-	125					
Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	Liquid RPD	Conc. RPD Limits	Units: µg/L Recovery Limits
1,1-Dichloroethene	<0.2	20.0	21	LCSD	2/4/2005	105	2.4	25	80 - 120
Benzene	<0.2	20.0	19	LCSD	2/4/2005	96.0	2.6	25	80 - 120
Chlorobenzene	<0.2	20.0	20	LCSD	2/4/2005	101	0.99	25	80 - 120
Methyl-t-butyl Ether	<0.3	20.0	20	LCSD	2/4/2005	102	3.8	25	80 - 120
Toluene	<0.2	20.0	21	LCSD	2/4/2005	103	0.0	25	80 - 120
Trichloroethylene	<0.2	20.0	20	LCSD	2/4/2005	98.0	3.5	25	80 - 120
Surrogate	% Recovery	Control Limits							
4-Bromofluorobenzene	90.8	75	-	125					
Dibromofluoromethane	96.6	75	-	125					
Toluene-d8	99.5	75	-	125					

Entech Analytical Labs, Inc.

3334 Victor Court
Santa Clara, CA 95054

(408) 588-0200
(408) 588-0201 - Fax

Chain of Custody / Analysis Request

Attention to: Glenn Matteucci		Phone No.: 707.766.2000		Purchase Order No.:		Invoice to: (If Different)		Phone:																																	
Company Name: Environmental Resolutions, Inc.		Fax No.: 707.789.0414		Project No.: 261905		Company:		Quote No.:																																	
Mailing Address: 601 North McDowell Blvd.		Email Address: gmatteucci@eri-us.com		Project Name: Redwood Oil		Billing Address: (If Different)																																			
City: Petaluma		State: CA	Zip Code: 94954	Project Location: 1855 Guerneville Road		City: Santa Rosa		State: CA	Zip:																																
Sampler: J. Herman		Field Org. Code:		Turn Around Time		GC/MS Methods		GC Methods		General Chemistry																															
				<input type="checkbox"/> Same Day	<input type="checkbox"/> 1 Day																																				
				<input type="checkbox"/> 2 Day	<input type="checkbox"/> 3 Day																																				
				<input type="checkbox"/> 4 Day	<input type="checkbox"/> 5 Day																																				
				<input checked="" type="checkbox"/> 40 Day																																					
Order ID:		Sample		Matrix	No. of Containers	EPA 8260B		BTEX		TPH Gas		TPH Extractable		PCBs		Pesticides		TPH as Gas		MTBE		PCP		Anions		TOC		Dissolved Solids		STLC		G9 & D		G9 & TOC		G9 & Dissolved Solids		G9 & TOC		G9 & Dissolved Solids	
Client ID / Field Point	Lab. No.	Date	Time			EPA 8260B	BTEX	TPH Gas	TPH Extractable	PCBs	Pesticides	TPH as Gas	MTBE	PCP	Anions	TOC	Dissolved Solids	STLC	G9 & D	G9 & TOC	G9 & Dissolved Solids	G9 & TOC	G9 & Dissolved Solids	G9 & D	G9 & TOC	G9 & Dissolved Solids	G9 & D	G9 & TOC	G9 & Dissolved Solids												
E-MW7-2	422014-001	2/3/05	10:00	X																																					
I-MW7-2	ED2	11	10:15																																						
Relinquished by: <i>Glenn Matteucci</i>		Received by: <i>J. Herman</i>		Date: 2/4/05	Time: 0950	Special Instructions or Comments										<input type="checkbox"/> EDD Report <input type="checkbox"/> EDF Report <input type="checkbox"/> Plating <input type="checkbox"/> LUFT-5 <input type="checkbox"/> RCRA-8 <input type="checkbox"/> PPM-13 <input type="checkbox"/> CAM-17																									
Relinquished by: <i>Glenn Matteucci</i>		Received by: <i>J. Herman</i>		Date: 2/4/05	Time: 0950	Metals:																																			
Relinquished by: <i>Glenn Matteucci</i>		Received by: <i>J. Herman</i>		Date: 2/4/05	Time: 0950	Al, As, Sb, Ba, Be, Bi, B, Cd, Ce, Ca, Cr, Co, Cs, Cu, Fe, Pb, Mg, Mn, Ga, Ge, Hg, In, Li, Mo, Ni, P, K, Si, Ag, Na, S, Se, Sr, Ta, Te, Tl, Sn, Ti, Zn, V, W, Zr																																			

Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Glenn Matteucci
Environmental Resolutions
601 North McDowell Blvd.
Petaluma, CA 94954

Certificate ID: 42314 - 2/8/2005 8:01:03 PM

Order Number: 42314
Project Name: Redwood Oil

Date Received: 2/7/2005 1:28:37 PM
P.O. Number: 261905

Certificate of Analysis - Final Report

On February 07, 2005, samples were received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

<u>Matrix</u>	<u>Test</u>	<u>Method</u>	<u>Comments</u>
Air	8260Petroleum TPH as Gasoline-GCMS	EPA 8260B GC-MS	

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346).
If you have any questions regarding this report, please call us at 408-588-0200 ext. 225.

Sincerely,



Laurie Glantz-Murphy
Laboratory Director

Entech Analytical Labs, Inc.

3334 Victor Court, Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

Environmental Resolutions
601 North McDowell Blvd.
Petaluma, CA 94954
Attn: Glenn Matteucci

Project Name: Redwood Oil
Date Received: 2/7/2005
P.O. Number: 261905
Sample Collected by: Client

Certificate of Analysis - Data Report

Lab # : 42314-001	Sample ID: E-MW7-2	Matrix: Air	Sample Date: 2/5/2005	4:50 PM
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Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.063	ppmV	N/A	N/A	02/08/2005	WMS2050207B
Toluene	ND		1	0.053	ppmV	N/A	N/A	02/08/2005	WMS2050207B
Ethyl Benzene	ND		1	0.046	ppmV	N/A	N/A	02/08/2005	WMS2050207B
Xylenes, Total	ND		1	0.092	ppmV	N/A	N/A	02/08/2005	WMS2050207B
Methyl-t-butyl Ether	ND		1	0.11	ppmV	N/A	N/A	02/08/2005	WMS2050207B

Surrogate	Surrogate Recovery	Control Limits (%)	Analyzed by: MTu
4-Bromofluorobenzene	84.7	75 - 125	Reviewed by: LGLANTZ
Dibromofluoromethane	95.4	75 - 125	
Toluene-d8	99.9	75 - 125	

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	2.5	ppmV	N/A	N/A	02/08/2005	WMS2050207B
Surrogate	Surrogate Recovery	Control Limits (%)	Analyzed by: MTu						
4-Bromofluorobenzene	88.6	75 - 125	Reviewed by: LGLANTZ						
Dibromofluoromethane	92.8	75 - 125							
Toluene-d8	96.8	75 - 125							

Detection Limit = Detection Limit for Reporting.

ND = Not Detected at or above the Detection Limit.

DF = Dilution and/or Prep Factor including sample volume adjustments.

2/8/2005 8:00:55 PM - lgantz

Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

Environmental Resolutions
601 North McDowell Blvd.
Petaluma, CA 94954
Attn: Glenn Matteucci

Project Name: Redwood Oil
Date Received: 2/7/2005
P.O. Number: 261905
Sample Collected by: Client

Certificate of Analysis - Data Report

Lab #:	42314-002	Sample ID:	I-MW7-2	Matrix:	Air	Sample Date:	2/5/2005	5:00 PM
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Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		2.5	0.16	ppmV	N/A	N/A	02/08/2005	WMS2050207B
Toluene	ND		2.5	0.13	ppmV	N/A	N/A	02/08/2005	WMS2050207B
Ethyl Benzene	0.73		2.5	0.11	ppmV	N/A	N/A	02/08/2005	WMS2050207B
Xylenes, Total	3.3		2.5	0.23	ppmV	N/A	N/A	02/08/2005	WMS2050207B
Methyl-t-butyl Ether	ND		2.5	0.28	ppmV	N/A	N/A	02/08/2005	WMS2050207B

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	86.1	75 - 125	Analyzed by: MTu
Dibromofluoromethane	93.8	75 - 125	Reviewed by: LGLANTZ
Toluene-d8	101	75 - 125	

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	63		2.5	6.3	ppmV	N/A	N/A	02/08/2005	WMS2050207B

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	89.3	75 - 125	Analyzed by: MTu
Dibromofluoromethane	91.2	75 - 125	Reviewed by: LGLANTZ
Toluene-d8	97.9	75 - 125	

Detection Limit = Detection Limit for Reporting.

DF = Dilution and/or Prep Factor including sample volume adjustments.

ND = Not Detected at or above the Detection Limit.

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Quality Control - Method Blank

Liquid

Validated by: LGLANTZ - 02/08/05

QC Batch ID: WMS2050207B

Analysis Date: 2/8/2005

Method Blank	Method: EPA 8260B			
Parameter	Result	DF	PQLR	Units
Benzene	ND	1	0.5	µg/L
Diisopropyl Ether	ND	1	5	µg/L
Ethyl Benzene	ND	1	0.5	µg/L
Ethyl-t-butyl Ether	ND	1	5	µg/L
Methyl-t-butyl Ether	ND	1	1	µg/L
tert-Amyl Methyl Ether	ND	1	5	µg/L
tert-Butanol (TBA)	ND	1	10	µg/L
Toluene	ND	1	0.5	µg/L
Xylenes, Total	ND	1	0.5	µg/L
Surrogate for Blank	% Recovery	Control Limits		
4-Bromofluorobenzene	90.2	75	-	125
Dibromofluoromethane	102	75	-	125
Toluene-d8	99.4	75	-	125

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Quality Control - Laboratory Control Spike / Duplicate Results

Liquid

Reviewed by: LGLANTZ - 02/08/05

QC Batch ID: WMS2050207B

Analysis Date: 2/8/2005

LCS	Method:	EPA 8260B						Conc. Units: µg/L		
Parameter		Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
Benzene		<0.2	20.0	20	LCS	2/8/2005	102			80 - 120
Methyl-t-butyl Ether		<0.3	20.0	23	LCS	2/8/2005	114			80 - 120
Toluene		<0.2	20.0	21	LCS	2/8/2005	104			80 - 120

Surrogate	% Recovery	Control Limits		
4-Bromofluorobenzene	93.1	75	-	125
Dibromofluoromethane	105	75	-	125
Toluene-d8	94.3	75	-	125

LCSD	Method:	EPA 8260B						Conc. Units: µg/L		
Parameter		Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
Benzene		<0.2	20.0	20	LCSD	2/8/2005	100	2.0	25.0	80 - 120
Methyl-t-butyl Ether		<0.3	20.0	22	LCSD	2/8/2005	109	4.9	25.0	80 - 120
Toluene		<0.2	20.0	21	LCSD	2/8/2005	105	1.4	25.0	80 - 120

Surrogate	% Recovery	Control Limits		
4-Bromofluorobenzene	90.8	75	-	125
Dibromofluoromethane	104	75	-	125
Toluene-d8	96	75	-	125

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Santa Clara, CA 95054 (408) 588-0201 - Fax

Chain of Custody / Analysis Request

June 2004

ATTACHMENT C
FIELD PROTOCOL

FIELD PROTOCOL

Site Safety Plan

Field work will be performed by ERI personnel in accordance with a Site Safety Plan developed for the site. This plan describes the basic safety requirements for the subsurface investigation and the drilling of soil borings at the work site. The Site Safety Plan is applicable to personnel and subcontractors of ERI. Personnel at the site are informed of the contents of the Site Safety Plan before work begins. A copy of the Site Safety Plan is kept at the work site and is available for reference by appropriate parties during the work. The ERI geologist will act as the Site Safety Officer.

Drilling of Soil Borings

Prior to the drilling of soil borings, ERI will acquire necessary permits from the appropriate agency(ies). ERI will also contact Underground Service Alert (USA) and a private underground utility locator before drilling to help locate public utility lines at the site. ERI will clear the proposed locations to a depth of approximately 4 feet before drilling to reduce the risk of damaging underground structures.

The CPT borings will be advanced using direct-push technology. The monitoring well borings will be drilled with a B57 (or similar) drill rig with hollow-stem auger. Samples will be continuously collected. Auger flights and sampling equipment will be steam-cleaned before use to minimize the possibility of crosshole contamination. The rinsate will be containerized and stored on site. ERI will coordinate with Redwood for appropriate disposal of the rinsate.

Drilling will be performed under the observation of a field geologist, and the earth materials in the boring will be identified using visual and manual methods, and classified as drilling progresses using the Unified Soil Classification System. Soil borings will be drilled to approximately 130 feet bgs.

Soil cuttings generated during drilling will be placed on plastic sheeting and covered and left at the site. ERI will coordinate with Redwood for the soil to be removed to an appropriate disposal facility.

Groundwater Sample Collection

Water samples are collected with a Hydropunch® sampling device, new, disposable Teflon® or polypropylene bailer. The groundwater is carefully poured into selected sample containers (40-milliliter [ml] glass vials, 1,000-ml glass amber bottles, etc.), which are filled so as to produce a positive meniscus.

Depending on the required analysis, each sample container is preserved with hydrochloric acid, nitric acid, etc., or it is preservative free. The type of preservative used for each sample is specified on the Chain-of-Custody form.

Each vial and glass amber bottle is sealed with a cap containing a Teflon® septum, and subsequently examined for air bubbles to avoid headspace, which would allow volatilization to occur. The samples are promptly transported in iced storage in a thermally insulated ice chest, accompanied by a Chain-of-Custody record, to a California state-certified laboratory.